



# FINAL

## Compass Report

### **Wisconsin State Highway 2014 Maintenance, Traffic, and Operations Conditions**

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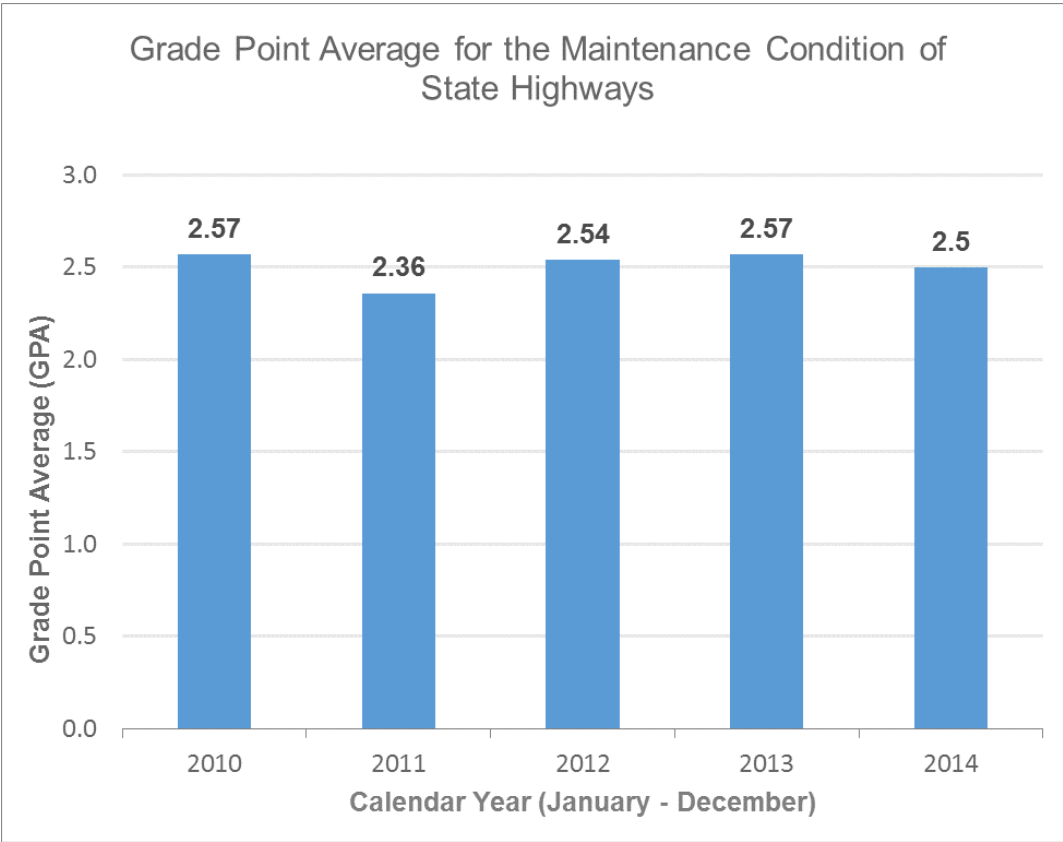
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## Executive Summary

The “Compass” program collects roadway field data each year to help WisDOT understand current infrastructure conditions and trends. The data also helps department managers set reasonable maintenance targets that reflect department priorities and respond to limited resources. To ensure that maintenance targets are consistently reflected in work programs around the state, these priorities are shared with the WisDOT regions to help structure the Routine Maintenance Agreements with counties. And to evaluate the maintenance target setting process, existing conditions are compared to their target levels to see if the annual goals were met or exceeded.

The 2014 Compass Annual Report has been completed based on the yearly field review process and current data from the WisDOT Sign Inventory Management System, WisDOT Annual Winter Maintenance Report and Highway Structures Information System. Below are the significant messages on the current condition of the state highway system and specific examples of how the Bureau of Highway Operations uses the information to manage the system:

- *MAPSS performance data:* The 2014 grade point average (GPA) for state highway maintenance is 2.50. This is a slight decrease from the 2.57 grade point average received in 2013 (refer to chart on next page). The Compass grade point average is the highway maintenance performance measure for the MAPSS (Mobility, Accountability, Preservation, Safety, and Service) performance monitoring system. The department’s maintenance goal is a 3.00 GPA
- *Continued focus on reducing shoulder drop-off:* There has been continued emphasis on fixing drop-off along unpaved shoulders, so drivers who veer off the traveled way can safely get back onto the paved surface. More aggressive maintenance targets have been set over the past several years to deal with this problem. The actual amount of drop-off for unpaved shoulders in 2014 increased to 41%, after having been at 36% for 2012 and 2013. There will be a continued focus on improving safety by reducing shoulder drop-off.
- *Removing hazardous debris on shoulders:* For several years the department has emphasized the safety benefits of removing hazardous debris from roadways. This year the backlog for hazardous debris is 7%, which matches the backlog level in 2012 and 2013, the lowest level recorded during the previous five-year period.
- *More visible, longer lasting traffic signs:* About 17,000 new high-intensity signs were installed along the state highway system between 2013 and 2014. More than eighty-nine percent of the 306,218 signs on the state system now have high-intensity face material, providing better illumination to drivers during low light conditions and evenings.
- *Targeted replacement of regulatory and warning signs:* About 51,000 signs around the state are older than their suggested useful life. This is a reduction of about 5,000 signs from the 2013 backlog level. With limited sign replacement funds, the routine replacement of regulatory and warning signs (such as stop signs and speed limit signs) has been prioritized over the replacement of other types of signs. Based on this policy, 8.56% of the regulatory and warning signs are beyond their recommended service life, a slight percent improvement from the 2013 level (9.48%). Thirty percent of other signs (e.g. detour/object marker/recreation/guide signs) are older than their suggested useful life. This is a three percentage point improvement from last year.



# Compass Annual Report

## ***About this report***

The *Compass Annual Report* is issued each year to communicate the condition of Wisconsin's state highway network and to demonstrate accountability for maintenance expenditures. The primary audience for this report includes Maintenance Supervisors and Operations Managers at the Wisconsin Department of Transportation (WisDOT) and partner organizations including the 72 counties. Compass reports are used to understand trends and conditions, prioritize resources, and set future target condition levels for the state highway system. The condition data is also used to estimate the costs to reduce maintenance backlogs to varying levels of service.

This report includes data on traveled ways (paved traffic lanes), shoulders, drainage, roadsides, selected traffic devices, specific aspects of winter maintenance activities, and bridges. The report *does not include* measures for preventive maintenance, operational services (like traveler information and incident management), or electrified traffic assets (like signals and lighting). It is important to consider what is not in the report when using this information to discuss comprehensive investment choices and needs.

The first section of this report provides a program overview and scorecard based on current conditions. Subsequent sections of the report provide detailed information on each roadway feature. The document is available on the Compass website ([http://dotnet/dtid\\_bho/extranet/compass/reports/index.shtm](http://dotnet/dtid_bho/extranet/compass/reports/index.shtm) from within WisDOT or [https://trust.dot.state.wi.us/extntgtwy/dtid\\_bho/extranet/compass/reports/index.shtm](https://trust.dot.state.wi.us/extntgtwy/dtid_bho/extranet/compass/reports/index.shtm) from outside WisDOT).

Feedback on format, content, and other aspects of the report is welcome and should be sent to Scott Bush, Compass Program Manager, at [Scott.Bush@dot.wi.gov](mailto:Scott.Bush@dot.wi.gov) or (608) 266-8666.

## ***Background***

Compass was implemented statewide in 2002 as WisDOT's maintenance quality assurance and asset management program for highway maintenance. The Compass report is intended to provide a comprehensive overview of highway maintenance by integrating information from field reviews with inventory data and other information sources.

## ***Process***

The Compass report is issued annually in cooperation with the research team from the Wisconsin Transportation Center (WisTrans) at University of Wisconsin – Madison. Starting in January of each year, WisTrans and the Compass Program Manager work on the analysis of each element. The project team presents the draft report at the Compass Advisory Team meeting and the WisDOT Operations Managers meeting in the spring. The report is revised based on feedback from these meetings. The report is then finalized and officially published by the end of each year.

This report uses inventory data for bridges, pavement, routine maintenance of signs, and winter storms. It uses sample data for highway maintenance features. The project team collected data from the WisDOT business areas between December 2013 and May 2014.

The highway maintenance data includes data sampled from the field. One thousand two hundred 1/10-mile segments are randomly selected and evaluated around the state. A WisDOT Maintenance Coordinator and a County Patrol Superintendent collect the field data in each county between August 15 and October 15 every year. The field survey includes a condition analysis of shoulders, drainage features, roadside attributes, and traffic control devices.

Winter maintenance data is gathered from the winter season 2013-14 and includes Time to Bare Wet, Winter Severity Index, Winter VMT, and crash data. Figures and tables are taken directly from the 2013-14 WisDOT *Annual Winter Maintenance Report* prepared by WisDOT's Winter Operations unit, including the "Winter by the Numbers" table and the statewide snowfalls and Winter Severity Index figures.

Starting with the 2009 Compass Annual Report, pavement data was obtained directly from WisDOT's Pavement Maintenance Management System (PMMS). This completes the transition from the previous method. The transition started with the 2008 Compass Annual Report by reporting condition based on the deficiency thresholds and condition categories in the PMMS while still getting the pavement data from the Program Information Files (PIF).

The routine replacement needs for signs comes from the Sign Inventory Management System (SIMS) and the bridge data comes from the Highway Structure Information System (HSIS).

Compass identifies backlog percentages for each feature at the county, region and statewide level. The data is statistically valid, though, only at the region and statewide levels. Backlog percentages indicate what percent of the roadway feature is in a condition where a maintenance activity is required, assuming available budget. Therefore, an increasing backlog percentage reflects fiscal constraints rather than inadequate work in the field.

Appendix C identifies thresholds when assets are considered backlogged for highway maintenance. For pavement features, the backlog is determined based on logic in the PMMS. Each road segment receives a rating for each distress type, including "excellent", "fair", "moderate", or "bad", depending on the extent and severity of distress. Traffic signs are considered backlogged for maintenance if it is in use past its expected service life.

WisDOT Maintenance Supervisors and Operations Managers annually set the targets for backlog percentage levels for each feature. These targets are intended to reflect priorities and goals for the year in light of fiscal constraints. Appendix E provides the maintenance targets for 2014.

## ***Maintenance Report Card***

Compass uses predefined backlog percentage thresholds to assign a letter grade to the overall maintenance condition of each feature ("A" to "F"). A feature grade declines as more of a feature is backlogged. These grading scales vary to account for the importance of the feature to the motorist and roadway system. The grading categories include "Critical Safety", "Safety/Mobility", "Stewardship", "Ride/Comfort", and "Aesthetics". For example, a feature that contributes to critical safety would see its grade decline more rapidly than a feature that is primarily aesthetic in nature. A feature grade of "A" means that all basic routine maintenance needs have been met within the maintenance season and there is not a significant backlog. Appendix B lists the grading curve for each Compass feature and Appendix C identifies the contribution category for each feature. Features are listed in the report card in priority order within each contribution category.

## **System Overview**

Below is a summary of the 2014 condition grades for the 28 features that are evaluated in the field each year for the Compass program. The individual grades for the 28 features translate to an overall system condition grade point average of 2.50, or grade level C.

- A grade: 9 features (32%)
- B grade: 5 features (18%)
- C grade: 7 features (25%)
- D grade: 5 features (18%)
- F grade: 2 features (7%)

The two features which received a failing grade last year, Drop-off/Build-up on Unpaved Shoulders and Cracking on Paved Shoulders, were again the only two features to receive an F in 2014. The condition grade for most features stayed constant between 2013 and 2014. Out of 28 features surveyed, the condition grade remained unchanged for 26 roadway components (93%). The two features (7%) that had different grades in 2014 both received lower grades from the previous year. Protective Barriers and Potholes/Raveling on Paved Shoulders both went from an A condition grade in 2013 to a B grade in 2014.

A feature is considered to have met its target condition if it is within five percentage points of the target level. Nineteen features (68%) met the target condition in 2014. Five features (18%) exceeded their maintenance target in 2014, including Mowing, Regulatory/Warning Signs (routine replacement), Other Signs (routine replacement), Fences, and Culverts). Four features (14%) did not meet their maintenance target, including Drop-off/Build-up on Unpaved Shoulders, Cross-Slope on Unpaved Shoulders, Cracking on Paved Shoulders, and Flumes. The following tables identify the five-year trend in Compass feature grades by contribution category. Key observations are also provided for each contribution category.

## **Critical Safety Features**

The roadway features considered critical for safety are those which would necessitate immediate action to remedy if not properly functioning.

<b>Feature</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>Element</b>
Reg./Warning Signs (emergency repair)	A	A	A	B	A	Traffic and Safety
Hazardous Debris	C	C	C	C	C	Shoulders
Protective Barriers	<b>B</b>	A	B	B	A	Traffic and Safety
Centerline Markings	C	C	B	C	C	Traffic and Safety
Edgeline Markings	C	C	B	C	C	Traffic and Safety
Drop-off/Build-up (unpaved shoulder)	F	F	F	F	F	Shoulders
Drop-off/Build-up (paved shoulder)	B	B	A	B	A	Shoulders

- One Critical Safety feature, Protective Barriers, dropped one grade level. This reverses the trend of the previous two years for this feature.
- No Critical Safety features received improved grades in 2014.

- Regulatory/Warning Signs (emergency repair), Hazardous Debris, Centerline Markings, Edgeline Markings, Drop-off/Build-up on Unpaved Shoulders, and Drop-off/Build-up on Paved Shoulders all received the same grade as in the previous year.
- All Critical Safety features except Drop-off/Build-up on Unpaved Shoulders met their condition targets. This feature missed the target backlog rate by 11%, worse than last year and marking the fourth consecutive year in which the target has not been met.

### **Safety/Mobility Features**

Safety/Mobility features are highway features and characteristics that protect users against - and provide them with a clear sense of freedom from - danger, injury or damage.

Feature	2014	2013	2012	2011	2010	Element
Woody Veg. Control for Vision	A	A	A	A	A	Roadside
Mowing for Vision	A	A	A	A	A	Roadside
Special Pavement Markings	B	B	B	C	C	Traffic and Safety
Woody Vegetation	A	A	A	A	A	Roadside
Culverts	D	D	D	D	D	Drainage
Storm Sewer System	C	C	C	C	C	Drainage
Cross-Slope (unpaved shoulder)	D	D	D	D	C	Shoulders
Delineators	D	D	D	D	C	Traffic and Safety
Reg./Warning Signs (routine replace.)	B	B	C	C	C	Traffic and Safety
Fences	A	A	A	A	A	Roadside

- All features in the Safety/Mobility category maintained the grades they received in the previous year.
- Woody Vegetation Control, Woody Vegetation Control for Vision, Fences, and Mowing for Vision all maintained A grades. Woody Vegetation Control for Vision had the lowest backlog rate of all features at just less than 1%.
  - All Safety/Mobility features except Fences, Cross-Slope on Unpaved Shoulders, Reg./Warning Signs (routine), and Culverts met their condition targets. Fences, Reg./Warning Signs (routine), and Culverts performed better than their targets, while Cross-Slope on Unpaved Shoulders did not meet its target maintenance level.

### **Stewardship Features**

Stewardship captures performance on routine and preventive maintenance actions taken to help a highway element obtain its full potential service life.

Feature	2014	2013	2012	2011	2010	Element
Ditches	A	A	A	A	A	Drainage
Curb & Gutter	A	A	A	A	A	Drainage
Flumes	D	D	D	D	D	Drainage
Cracking (paved shoulder)	F	F	F	F	F	Shoulders
Erosion (unpaved shoulder)	A	A	A	A	A	Shoulders
Under-drains/Edge-drains	C	C	D	D	C	Drainage



- All Stewardship features maintained the grades they received last year.
- Ditches, Curb and Gutter, and Erosion on Unpaved Shoulders all continued to receive feature grades of A.
- After three years of worsening conditions for Flumes, the statewide backlog rate dropped five percentage points in 2014. Despite the change, the feature continues to receive a condition grade of D.
- Cracking on Paved Shoulders continued to receive the F grade it has received throughout the historical window and also had the worst change in backlog rate, jumping from 54% to 69%.
- Four of the six Stewardship features achieved their target maintenance backlog levels (Ditches, Curb & Gutter, Erosion on Unpaved Shoulders, and Under-drains/Edge-drains).
- The two features that did not meet target levels, Flumes and Cracking on Unpaved Shoulders, both had backlog rates above (worse than) their targets.

### **Ride/Comfort Features**

The ride quality and comfort features provide a state of ease and quiet enjoyment for highway users. These features include proper signing and lack of pavement obstructions.

Feature	2014	2013	2012	2011	2010	Element
Potholes/Raveling (paved shoulder)	<b>B</b>	A	A	A	A	Shoulders
Other Signs (emergency repair)	A	A	A	A	A	Traffic and Safety
Other Signs (routine replacement)	C	C	D	D	D	Traffic and Safety

- Potholes/Raveling received a B grade for the first time in the five-year window, while Other Signs (emergency repair) and Other Signs (routine repair) continued their trends, receiving an A and a C, respectively.
- Potholes/Raveling on Paved Shoulders and Other Signs (emergency repair) both met their condition targets in 2014, while Other Signs (routine replacement) did better than its target.

### **Aesthetics Features**

Aesthetics includes the display of natural beauty, such as landscaping, location along a highway corridor. Aesthetics also includes the absence of things like litter, which detracts from the sightlines of the road.

Feature	2014	2013	2012	2011	2010	Element
Mowing	C	C	C	C	C	Roadside
Litter	D	D	D	D	D	Roadside

- The 2014 grade for Mowing is a C, consistent with grades over the five-year window. Despite increasing consistently over the past several years, the 2014 backlog rate is the lowest in the five-year window at 34%
- The grade for litter in 2014 is a D, consistent throughout the five-year window.
- The Litter maintenance backlog rate was on-target, while the improvement in Mowing conditions resulted in the feature having a backlog rate below the target.

### **Winter:**

- In contrast to the mild winter of 2011-12, 2012-13 was the most costly winter on record. The total cost of statewide winter operations was \$94.98 million, making it 69% more costly than 2011-2012. Salt and equipment expenditures both increased 78 percent, labor expenditures went up 49%, while expenditures for materials other than salt decreased by 7% relative to the previous year.
- Statewide, the average snowfall was approximately 93 inches, well above the 30 year average of 52.4 inches and nearly double the average of the previous winter. The highest snowfall recorded in 2013-13 winter season was 249 inches in Iron County, while the lowest level was 43 inches in Milwaukee County. Both figures were well above those of the previous winter.
- The statewide average number of winter storms was 36 in 2012-2013, significantly more than in the 2011-2012 average of 26. Iron County experienced the most storms, 65, while Green County had the least, at 22. The number of storms has a more significant impact on resources expended than snowfall totals, since staff and equipment may be required with a minimal snowfall or freezing rain.
- Seventy-three percent of roads had bare/wet pavement within WisDOT target times, down from 79 percent in the previous winter. From storm to storm, most of the variability in a county's ability to achieve bare/wet pavement within the target times is due to weather effects (type, duration and severity of storms throughout the winter season).
- There were 7,767 reported weather-related crashes in winter 2012-2013, defined as crashes occurring on pavements covered with snow, slush or ice. The crash rate (number of crashes per 100 million vehicle miles traveled) increased drastically (45 percent) to a statewide average of 29, up from last winter's crash rate of 20. However, this is less than the 2010-11 crash rate of 35, which was a relatively comparable year in terms of winter severity.

### **Bridges:**

- Statewide, 31% of decks are in Fair condition, receiving an NBI rating of 5 or 6, and need reactive maintenance. These include 25% of concrete bridges and 43% of steel bridges.
- The NW Region has the lowest percent of decks in good condition, at 52%. The SE and SW Regions both have the highest percentage of decks in poor condition, at 3%, as well as the most deck area to maintain (14,874,847 ft<sup>2</sup> and 13,059,412 ft<sup>2</sup>, respectively).
- The NE Region (875 bridges) has the best bridge ratings in the state with 89% of decks in Good condition and an impressive 0% in Poor and Critical condition.

## Wisconsin 2014: Compass Report on Highway Maintenance Conditions

Element	What are we spending?					Feature	How much of the system still needs work at the end of the maintenance season?					How well maintained is the system?					
	Dollars spent (in millions) <sup>1</sup>						Condition change: 2013 to 2014 <sup>2</sup>	% of system backlogged					2014 Feature grades				
	FY 10	FY 11	FY 12	FY 13	FY 14			2010	2011	2012	2013	2014	A	B	C	D	F
Shoulders	13.28 14.42 0.40 0.43	11.05 11.80 0.33 0.35	11.08 11.48 0.33 0.34	8.16 8.28 0.24 0.24	7.79 7.79 0.23 0.23	Hazardous Debris	-	8	7	7	7	7			C		
						Drop-off/Build-up (paved)	-	2	3	1	4	4		B			
						Cracking (paved)	↓↓	60	60	55	54	69					F
						Potholes/Raveling (paved)	↓	5	6	6	7	8		B			
						Drop-off/Build-up (unpaved)	↓	37	37	36	36	41					F
						Cross-Slope (unpaved)	↓	18	27	26	22	27				D	
						Erosion (unpaved)	↓	1	2	1	1	3	A				
Drainage	9.13 9.91 0.27 0.30	8.54 9.13 0.25 0.27	7.90 8.18 0.23 0.24	7.10 7.20 0.21 0.21	7.04 7.04 0.20 0.20	Ditches	-	2	3	1	1	1	A				
						Culverts	↑	28	22	25	25	21				D	
						Under-drains/Edge-drains	↑	21	33	30	29	26			C		
						Flumes	↑	36	39	45	47	42				D	
						Curb & Gutter	↓	6	4	5	4	5	A				
						Storm Sewer System	↓	17	17	13	14	15			C		
Roadsides	16.48 17.90 0.49 0.53	16.60 17.73 0.49 0.52	23.10 23.93 0.68 0.70	18.65 18.93 0.55 0.55	15.03 15.03 0.44 0.44	Litter	↑	62	63	62	64	61				D	
						Mowing	↑	36	38	39	41	34			C		
						Mowing for Vision	↓	3	1	1	0.3	2	A				
						Woody Vegetation	↑	4	2	3	3	2	A				
						Woody Veg. Control for Vision	-	1	1	1	1	1	A				
						Fences	↑	2	1	3	2	1	A				

<sup>1</sup> The dollar values listed in each column show the nominal dollars, constant dollars (base year 2014), nominal dollars per thousand lane miles, and constant dollars per thousand lane miles, respectively.

<sup>2</sup> Arrows indicate a condition change from 2013 to 2014 (↑ = improved condition/lower backlog, ↓ = worse condition/higher backlog). Double arrows indicate the backlog changed 8 or more percentage points.

Element	What are we spending?					Feature	How much of the system still needs work at the end of the maintenance season?					How well maintained is the system?					
	Dollars spent (in millions) <sup>1</sup>						Condition change: 2013 to 2014 <sup>2</sup>	% of system backlogged					2014 Feature grades				
	FY 10	FY 11	FY 12	FY 13	FY 14			2010	2011	2012	2013	2014	A	B	C	D	F
Traffic & safety (selected)	17.61 19.12 0.53 0.57	20.13 21.50 0.60 0.64	21.93 22.72 0.65 0.67	21.81 22.12 0.64 0.65	22.45 22.45 0.65 0.65	Centerline Markings	↓	7	6	4	6	8			C		
						Edgeline Markings	↓	8	7	3	7	9			C		
						Special Pavement Markings	↑	11	10	6	9	6		B			
						Reg./Warning Signs (emerg.)	↑	1	3	1	2	1	A				
						Reg./Warning Signs (routine)	-	17	15	12	9	9		B			
						Other Signs (emerg. repair)	↓	1	4	3	2	3	A				
						Other Signs (routine replacement)	↑	44	39	37	33	30			C		
						Delineators	-	14	25	21	22	22				D	
						Protective Barriers	↓	1	5	3	1	3		B			

## Wisconsin 2014: Targets for Highway Maintenance Conditions

Targets are set annually, and are intended to reflect priorities for that year, given fiscal constraints. They are a measure of effective management, not system condition.

			Statewide									Regions		
Contribution Category	Feature	Element	Actual % backlog 2014	Target % backlog 2014	On target <sup>3</sup>	Gap if target missed						Worse condition	On Target	Better condition
						Worse condition			Better condition					
						20	10	0	0	10	20			
Critical Safety	Reg./Warning Signs (emerg.)	Traffic and Safety Devices	1	0	⊙								ALL	
	Hazardous Debris	Shoulders	7	5	⊙							NE, SW	NC, NW, SE	
	Protective Barriers	Traffic and Safety Devices	3	3	⊙								ALL	
	Centerline Markings	Traffic and Safety Devices	8	5	⊙								ALL	
	Edgeline Markings	Traffic and Safety Devices	9	8	⊙							SW	NC, NE, SE	NW
	Drop-off/Build-up (unpaved)	Shoulders	41	30			11					NE, NW, SE, SW	NC	
	Drop-off/Build-up (paved)	Shoulders	4	4	⊙							SE	NC, NE, NW, SW	

<sup>3</sup> ◎ This symbol indicates that the percent backlogged for that feature is the same as the target, or within 5 percentage points.

			Statewide									Regions		
Contribution Category	Feature	Element	Actual % backlog 2014	Target % backlog 2014	On target <sup>3</sup>	Gap if target missed						Worse condition	On Target	Better condition
						Worse condition			Better condition					
						20	10	0	0	10	20			
Safety/ Mobility	Woody Veg. Control for Vision	Roadsides	1	2	⊙								ALL	
	Mowing for Vision	Roadsides	2	5	⊙								ALL	
	Special Pavement Markings	Traffic and Safety Devices	6	10	⊙								SE, SW	NC, NE, NW
	Woody Vegetation	Roadsides	2	5	⊙								ALL	
	Culverts	Drainage	21	30					9				NE	NC, NW, SE, SW
	Storm Sewer System	Drainage	15	15	⊙							SW	NE, NW, SE	NC
	Cross-Slope (unpaved)	Shoulders	27	20				7				SE, SW	NC, NE, NW	
	Delineators	Traffic and Safety Devices	22	25	⊙							SW	NW, SE	NC, NE
	Reg./Warning Signs (routine)	Traffic and Safety Devices	9	15					6				NE, SE	NC, NW, SW
	Fences	Roadsides	1	14						13				ALL
Stewardship	Ditches	Drainage	1	5	⊙								ALL	
	Curb & Gutter	Drainage	5	10	⊙								NW, SW	NC, NE, SE
	Flumes	Drainage	42	35				7				NE, NW, SW	SE	NC
	Cracking (paved)	Shoulders	69	60				9				NE, NW, SE, SW	NC	
	Erosion (unpaved)	Shoulders	3	5	⊙								ALL	
	Under-drains/Edge-drains	Drainage	26	30	⊙							NW	SW	NC, NE, SE

			Statewide									Regions		
Contribution Category	Feature	Element	Actual % backlog 2014	Target % backlog 2014	On target <sup>3</sup>	Gap if target missed						Worse condition	On Target	Better condition
						Worse condition			Better condition					
						20	10	0	0	10	20			
Ride/Comfort	Potholes/Raveling (paved)	Shoulders	8	10	⊙								NW, SE, SW	NC, NE
	Other Signs (emerg. repair)	Traffic and Safety Devices	3	1	⊙								ALL	
	Other Signs (routine replacement)	Traffic and Safety Devices	30	39					9			SE	NC, NE, NW, SW	SE
Aesthetics	Mowing	Roadsides	34	40					6			SE	NE, SW	NC, NW
	Litter	Roadsides	61	63	⊙							NE, SE, SW		NC, NW

# 2014 Highway Maintenance Conditions: Report on Shoulders, Drainage, Roadsides, and Traffic Control Devices

Data in this section comes from the Compass field review of random road segments performed by WisDOT region Maintenance Coordinators and county Patrol Superintendents. No statistical analysis has been completed on the county level data in Appendix G. Readers should take the number of observations into account when reviewing the information. Extreme caution should be exercised when analyzing data with fewer than 30 observations.

Below is a summary of the change between 2013 and 2014 in the *percentage* of roadways that are backlogged for maintenance. These changes didn't necessarily result in a new level of service grade. Refer to the "Maintenance Report Card" in the front part of the report for a complete summary of condition grade level changes between 2013 and 2014.

- Ten features (36%) had a reduction in the percentage of roadways backlogged for maintenance (i.e. better conditions).
- The amount of roadways backlogged for maintenance remained unchanged for six features (21%).
- Twelve features (43%) had an increase in the percentage of roadways backlogged for maintenance (i.e. worse conditions).
- Changes in backlog levels varied from one to 15 percentage points.

## Shoulders:

- The individual grades for the seven Shoulder features translate to an overall condition grade point average of 1.86 or grade level D.
- The backlog level remained the same for two of the seven Shoulder features (hazardous debris and drop-off/build-up on paved shoulders).
- Five of the seven Shoulder features had an increased backlog level, including cracking (+15%), drop-off on unpaved shoulders (+5%), cross-slope on unpaved shoulders (+5%), erosion on unpaved shoulders (+2%), and potholes on paved shoulders (+1%).
- Drop-off/buildup on unpaved shoulders received a feature grade of F for the tenth consecutive year. The percentage of roadways backlogged for maintenance increased from 36% to 41%.

## Drainage:

- The individual grades for the six Drainage features translate to an overall condition grade point average of 2.33 or grade level C.
- Three of the six Drainage features had a reduction in the percentage of roadways backlogged for maintenance, including under-drains/edge-drains (-3%), culverts (-4%), and flumes(-5%).
- Storm sewer system (+1%) and curb & gutter (+1%) both had slight increases in the percentage of roadways backlogged for maintenance.
- Only one Drainage feature – ditches - did not have a change in the amount of roadways backlogged for maintenance.



**Roadsides:**

- The individual grades for the six Roadside features translate to an overall condition grade point average of 3.17 or grade level B.
- Fences (-1%), litter (-3%), mowing (-7%), and woody vegetation (-1%) had a reduction in the percentage of roadways backlogged for maintenance.
- Mowing for vision (+1.7%) is the only Roadside feature with an increase in the percentage of roadways backlogged for maintenance.
- Woody vegetation control for vision did not have a change in the amount of roadways that are backlogged for maintenance.
- None of the backlog changes were significant enough to change the level of service grade from 2013.

**Traffic Control and Safety Devices:**

- The individual grades for the nine Traffic Control and Safety Devices translate to an overall condition grade point average of 2.67 or grade level C.
- Four Traffic Control and Safety Devices had an increase in the percentage of roadways backlogged for maintenance, including centerline markings (+2%), edgeline markings (+2%), protective barriers (+2%), and emergency repair of other signs (+1%).
- Special pavement markings (-3%), routine replacement of other signs (-3%), and regulatory/warning signs (-1%) had reductions in the percentage of roadways backlogged for maintenance.
- Routine replacement of regulatory/warning signs and delineators did not have changes in the percentage of roadways backlogged for maintenance.

## ***Regions 2014: Compass Report on Highway Maintenance Conditions***

### **Shoulders**

- **Hazardous Debris:** The backlog rates for hazardous debris found along state roadways varied from a low of 2% in the North Central Region to a high of 13% in the Southwest Region.
- **Paved Shoulders:** Cracking on Paved Shoulders increased significantly from 2013 in all regions except the Southeast. Backlog rates varied between 62% in the North Central Region and 80% in the Northeast Region. Drop-off/Build-up was highest in the Southeast Region at 11%, with all other regions at 6% or less. Potholes/Raveling had backlog rates of 1% and 2% in the North Central and Northeast regions, respectively, but had backlog rates between 9% and 14% in the other regions.
- **Unpaved Shoulders:** The Northeast, and southern regions have backlog rates of just under 50% for Drop-off/Build-up, while the North Central region had the lowest rate at 27%. Cross-slope backlogs were distributed between a low of 15% in the Northwest Region and a high of 44% in the Southeast Region. Erosion continued to have low backlog rates, with the highest rates occurring in the Southeast and Southwest regions at 5% and 4%, respectively.

### **Drainage**

- **Ditches:** Low backlog levels were found across the state, with the North Central Region reporting no deficiencies. The highest rate was 5% in the Southeast Region.
- **Culverts:** Culvert conditions varied throughout Wisconsin, ranging from a low backlog level of 12% in the North Central Region to a high of 32% in the Northeast Region.
- **Drains:** The Northeast Region had the lowest backlog level for drains at 14%, while the Northwest Region had the largest volume of work with 57% of drains requiring maintenance.
- **Flumes:** Backlog rates varied widely around the state, from a 29% backlog in the North Central Region to a 56% deficiency in the Northwest Region.
- **Curb and Gutter:** The Southwest and Northwest regions had maintenance backlog rates of 9% and 13% respectively, while the other three regions were had rates of 4% or less.
- **Storm Sewer Systems:** The Southwest Region had the highest maintenance backlogs at 26%. The other regions were similar with rates between 8% and 14%.

### **Roadsides**

- **Litter:** The Northeast and southern regions had maintenance backlog rates between 72% and 78%, while the lowest backlog rate was 38% in the North Central Region.
- **Mowing:** The Southeast Region (54%) had the highest maintenance backlog while the Northwest Region (22%) had the lowest need for additional mowing.
- **Mowing for Vision:** The North Central and Southeast regions had no observed backlogs in the sample, while the Northeast had the highest backlog rate of any region since 2011 at 4%.
- **Woody Vegetation:** Low backlog levels of between 1% and 5% were registered around the state.
- **Woody Vegetation for Vision:** While the Southeast Region had a backlog rate of 3%, all other regions had rates of 1% or 0%.
- **Fences:** The Northwest Region was the only region to report significant fence maintenance needs, with 6% requiring attention. Other regions had either a zero or near-zero backlog rate.

### **Traffic Control and Safety Devices**

- **Pavement Markings:** Centerline marking conditions were comparable across the regions, ranging from 6% to 9% backlog rates. All regions had Edgeline Marking backlogs between 2% and 8%,

except the Southwest Region with a 20% maintenance backlog level. Special Pavement Markings backlogs ranged from 0% in the Northeast Region to 11% in the Southwest Region.

- Emergency Repair of Regulatory/Warning Signs and Other Signs: The backlog levels for Regulatory/Warning Signs were all 1%, except for the Southwest Region (2%). Other Signs had more varied backlog levels, ranging between 1% and 6%.
- Routine Replacement of Regulatory/Warning Signs and Other Signs: The amount of old Regulatory/Warning signs still in service beyond their useful life ranged from 4% in the North Central Region to 12% of signs in the Southeast Region. Other Signs had significantly higher backlog rates, ranging from 14% in the North Central Region to 40% in the Southeast Region.
- Delineators: The condition of delineators varied widely across the regions, ranging from 6% in the North Central Region to 32% in the Southwest Region.
- Protective Barriers: The North Central Region had a backlog rate of 0% while the Northeast Region had the highest rate of 7%.

## Regions 2014: Compass Report on Highway Maintenance Conditions

Element	Feature	How much of the system needs work at the end of the season? <i>What did it cost to achieve this condition?</i>					
		Region Percent of System Backlogged					
		NC	NE	NW	SE	SW	Statewide
Shoulders	Hazardous Debris	2%	11%	3%	9%	13%	7%
	Drop-off/Build-up (paved)	2%	6%	3%	11%	2%	4%
	Cracking (paved)	62%	80%	66%	68%	71%	69%
	Potholes/Raveling (paved)	1%	2%	9%	14%	12%	8%
	Drop-off/Build-up (unpaved)	27%	49%	40%	48%	48%	41%
	Cross-Slope (unpaved)	23%	25%	15%	44%	39%	27%
	Erosion (unpaved)	2%	1%	3%	5%	4%	3%
	Dollars spent on shoulders (millions)	2.09	1.23	0.83	1.58	2.06	7.79
Drainage	Ditches	0.4%	1%	3%	5%	1%	1%
	Culverts	12%	32%	23%	18%	20%	21%
	Under-drains/Edge-drains	20%	14%	57%	20%	31%	26%
	Flumes	29%	46%	56%	36%	44%	42%
	Curb & Gutter	3%	4%	13%	3%	9%	5%
	Storm Sewer System	8%	11%	12%	14%	26%	15%
	Dollars spent on drainage (millions)	2.17	2.53	0.53	0.62	1.19	7.04
Roadsides	Litter	38%	74%	54%	78%	72%	61%
	Mowing	29%	41%	22%	54%	39%	34%
	Mowing for Vision	0%	4%	2%	0%	2%	2%
	Woody Vegetation	2%	1%	2%	5%	3%	2%
	Woody Veg. Control for Vision	1%	1%	0%	3%	1%	1%
	Fences	0.3%	0%	6%	0%	0.1%	1%
	Dollars spent on roadsides (millions)	3.77	4.05	2.01	2.23	2.97	15.03
Traffic and safety (selected devices)	Centerline Markings	9%	8%	6%	7%	8%	8%
	Edgeline Markings	7%	3%	2%	8%	20%	9%
	Special Pavement Markings	2%	0%	3%	5%	11%	6%
	Reg./Warning Signs (emerg.)	1%	1%	1%	1%	2%	1%
	Reg./Warning Signs (routine)	4%	11%	8%	12%	7%	9%
	Other Signs (emerg. repair)	1%	4%	6%	2%	2%	3%
	Other Signs (routine replacement)	14%	26%	33%	40%	29%	30%
	Delineators	6%	11%	22%	26%	32%	22%
	Protective Barriers	0%	7%	4%	1%	4%	3%
	Dollars spent on traffic and safety (selected devices) (millions)	5.66	5.12	3.05	3.85	4.78	22.45

### Regions 2014: Regional Trend

Element	Feature	Region	Year				
			2010	2011	2012	2013	2014
Shoulders	Hazardous Debris	NC	8%	5%	7%	5%	2%
		NE	6%	12%	10%	9%	11%
		NW	2%	1%	2%	3%	3%
		SE	12%	18%	17%	12%	9%
		SW	12%	9%	7%	11%	13%
	Drop-off/Build-up (paved)	NC	2%	4%	1%	1%	2%
		NE	3%	3%	1%	6%	6%
		NW	2%	1%	1%	3%	3%
		SE	2%	7%	3%	10%	11%
		SW	3%	4%	2%	3%	2%
	Cracking (paved)	NC	59%	55%	48%	48%	62%
		NE	56%	68%	70%	65%	80%
		NW	59%	59%	47%	51%	66%
		SE	73%	64%	70%	67%	68%
		SW	58%	60%	54%	53%	71%
	Potholes/Raveling (paved)	NC	5%	6%	8%	3%	1%
		NE	3%	6%	5%	5%	2%
		NW	5%	8%	4%	8%	9%
		SE	10%	6%	11%	10%	14%
		SW	6%	5%	4%	10%	12%
	Drop-off/Build-up (unpaved)	NC	38%	43%	37%	29%	27%
		NE	30%	37%	53%	44%	49%
		NW	32%	35%	26%	28%	40%
		SE	33%	48%	43%	48%	48%
		SW	44%	31%	35%	44%	48%
	Cross-slope (unpaved)	NC	26%	39%	35%	24%	23%
		NE	14%	34%	42%	28%	25%
		NW	18%	19%	15%	9%	15%
		SE	10%	34%	28%	29%	44%
		SW	16%	21%	21%	27%	39%
	Erosion (unpaved)	NC	2%	2%	0.4%	0%	2%
		NE	1%	1%	2%	1%	1%
		NW	1%	1%	0.3%	0.3%	3%
		SE	1%	6%	1%	2%	5%
		SW	1%	1%	1%	2%	4%
	Ditches	NC	2%	7%	2%	1%	0.4%

Drainage		NE	2%	1%	0.4%	0.4%	1%
		NW	1%	1%	1%	0.4%	3%
		SE	8%	6%	1%	3%	5%
		SW	1%	1%	0.2%	0.4%	1%
	Culverts	NC	22%	23%	25%	17%	12%
		NE	33%	11%	26%	19%	32%
		NW	33%	19%	28%	23%	23%
		SE	29%	39%	5%	29%	18%
		SW	26%	26%	26%	33%	20%
	Under-drains/Edge-drains	NC	15%	27%	13%	21%	20%
		NE	5%	5%	19%	25%	14%
		NW	25%	37%	58%	53%	57%
		SE	22%	42%	13%	11%	20%
		SW	42%	49%	50%	39%	31%
	Flumes	NC	25%	42%	46%	29%	29%
		NE	43%	28%	34%	26%	46%
		NW	25%	44%	31%	36%	56%
		SE	14%	37%	35%	56%	36%
		SW	53%	46%	65%	73%	44%
	Curb & Gutter	NC	3%	3%	4%	2%	3%
		NE	3%	1%	5%	3%	4%
		NW	25%	11%	14%	16%	13%
		SE	4%	0.4%	1%	0.3%	3%
		SW	4%	8%	9%	5%	9%
	Storm Sewer System	NC	15%	10%	19%	3%	8%
		NE	15%	10%	5%	10%	11%
		NW	20%	6%	3%	24%	12%
		SE	18%	21%	11%	12%	14%
		SW	16%	30%	28%	21%	26%
Roadsides	Litter	NC	53%	54%	52%	54%	38%
		NE	58%	78%	72%	75%	74%
		NW	58%	50%	56%	60%	54%
		SE	72%	83%	74%	74%	78%
		SW	71%	66%	65%	67%	72%
	Mowing	NC	36%	31%	34%	35%	29%
		NE	50%	51%	49%	54%	41%
		NW	34%	31%	34%	29%	22%
		SE	56%	47%	43%	55%	54%
		SW	24%	41%	42%	46%	39%
	Mowing for Vision	NC	0%	0%	2%	0%	0%
		NE	1%	0%	0%	0%	4%

			NW	3%	0%	1%	0%	2%
			SE	6%	5%	3%	0%	0%
			SW	7%	0%	1%	1%	2%
		Woody Vegetation Control	NC	3%	2%	4%	3%	2%
			NE	1%	3%	1%	2%	1%
			NW	5%	2%	1%	3%	2%
			SE	3%	2%	2%	1%	5%
			SW	4%	3%	7%	4%	3%
		Woody vegetation control for vision	NC	2%	1%	0%	1%	1%
			NE	1%	2%	1%	2%	1%
			NW	1%	0%	0.3%	0%	0.3%
			SE	0%	1%	3%	0%	3%
			SW	1%	1%	0.3%	2%	1%
		Fences	NC	1%	5%	3%	0%	0.3%
			NE	0.02%	0%	0%	0.1%	0%
			NW	2%	5%	12%	12%	6%
			SE	4%	0.4%	0.04%	0%	0.05%
			SW	2%	0.2%	3%	0.04%	0.1%
	Traffic and safety (selected devices)	Centerline Markings	NC	4%	7%	3%	5%	9%
			NE	6%	2%	6%	7%	8%
			NW	8%	7%	8%	8%	6%
			SE	18%	6%	6%	4%	7%
			SW	4%	6%	1%	4%	8%
		Edgeline Markings	NC	5%	7%	4%	4%	7%
			NE	6%	1%	6%	6%	3%
			NW	8%	5%	3%	5%	2%
			SE	21%	11%	4%	4%	8%
			SW	8%	11%	1%	12%	20%
		Special Pavement Markings	NC	10%	2%	11%	16%	2%
			NE	3%	7%	3%	0%	0%
			NW	6%	12%	8%	6%	3%
			SE	18%	15%	3%	4%	5%
			SW	7%	8%	7%	18%	11%
		Regulatory/warning signs (emergency repair)	NC	2%	3%	2%	1%	1%
			NE	0.4%	1%	0.3%	0%	1%
			NW	1%	1%	2%	4%	1%
			SE	1%	1%	1%	1%	1%
			SW	0.3%	7%	2%	2%	2%
		Regulatory/Warning Signs (routine replacement)	NC	16%	15%	7%	6%	4%
			NE	29%	23%	20%	13%	11%
			NW	12%	11%	8%	8%	8%

		SE	22%	20%	16%	14%	12%
		SW	12%	9%	8%	6%	7%
	Detour/Object Marker/Recreation/Guide Signs (emergency repair)	NC	2%	3%	7%	1%	1%
		NE	1%	0%	0%	1%	4%
		NW	1%	2%	3%	3%	6%
		SE	2%	3%	0%	2%	2%
		SW	2%	7%	5%	2%	2%
	Detour/Object Marker/Recreation/Guide Signs (routine replacement)	NC	36%	34%	29%	20%	14%
		NE	51%	39%	34%	28%	26%
		NW	39%	38%	40%	38%	33%
		SE	48%	45%	45%	44%	40%
		SW	46%	39%	35%	30%	29%
	Delineators	NC	6%	12%	5%	19%	6%
		NE	12%	13%	10%	6%	11%
		NW	15%	21%	22%	25%	22%
		SE	11%	46%	27%	40%	26%
		SW	18%	26%	30%	23%	32%
	Protective Barriers	NC	0.3%	15%	7%	2%	0%
		NE	0%	1%	0.02%	1%	7%
		NW	1%	8%	1%	2%	4%
		SE	0.3%	6%	10%	1%	1%
		SW	1%	3%	1%	2%	4%



## Mowing

The table below identifies the number of segments backlogged for Mowing and the statewide distribution of the deficiencies: ‘how’ (shown as columns) and ‘why’ (shown as rows). For the report, all of the segments shown are considered backlogged and contributed to the backlog percentage reported for Mowing. Note that multiple reasons for mowing deficiency are allowed; therefore the sum of percentages for each deficiency type can be more than 100%.

How roadway segments are backlogged for mowing is based on WisDOT policy for grass height and width. The following are the general components of the WisDOT mowing policy:

- Height: Grass should be between six inches and twelve inches.
- Outside shoulder width: Grass should be cut a maximum of fifteen feet in width or to the bottom of the ditch, whichever is less.
- Inside shoulder width (medians): Grass should be cut a maximum of five feet in width or one pass with a single unit mower. If the remaining vegetation width is ten feet or less, the entire median should be mowed.
- No-Mow Zones: Grass should not be cut in areas that have been designated and signed as “No-Mow” zones.

		How is it deficient?			
		# of segments with observed deficiency			
		% of segments			
		Too Wide	Too Short	Too High	In the No Mow Zone
Why is it deficient?	Safety/Equipment	1	0	0	0
		1%	0%	0%	0%
	Mowed by Property Owner	140	378	138	1
		80%	74%	23%	50%
	Woody Vegetation Control	0	0	0	0
		0%	0%	0%	0%
	Maintenance Decision	35	136	461	1
		20%	26%	77%	50%
Total		176	514	599	2

## 2014 Signs: Compass Report on Routine Replacement and Age Distribution

Data in this section comes from the WisDOT Sign Inventory Management System (SIMS). This section covers the routine replacement of signs based on their age and replacement standards. Data on the emergency repair of damaged and knocked-down signs is collected and reported in the Compass Field Review section of this report. The analysis looks at the age distribution and service life of highway signs. The expected service life is determined relative to the date signs are manufactured rather than the date they are installed.

Regulatory and warning signs on Wisconsin highways are critically important for the safety of Wisconsin's motorists. As such, WisDOT prioritizes the routine replacement of regulatory and warning signs over the routine replacement of other signs, including detour, object marker, recreation and guide signs.

### Key Observations in 2014:

- The backlog for routine replacement of regulatory and warning signs remained at 9%. Among regions, the percentage of regulatory and warning signs backlogged for replacement varies from a low of 4% in the North Central Region to a high of 12% in the Southeast Region.
- The backlog for routine replacement of other signs (i.e. detour/object marker/recreation/ guide signs) decreased from 33% in 2013 to 30% in 2014. By region, the percentage of other signs backlogged for routine replacement varies from 14% in the North Central Region to 40% in the Southeast Region.
- WisDOT is transitioning from engineering grade sign face material (grade 1) to more visible high intensity sign face material (grade 2). The percentage of high intensity signs on the state trunk highway system increased from 85% in 2013 to 89% in 2014. About 17,000 high intensity signs were added to the state system in the last year. About 96% of regulatory/warning signs are now high intensity signs, while 78% of other signs have high intensity face material.
- Regulatory and warning signs that are not replaced at the end of their recommended service life remain in use, on average, an additional 6.1 years. Similarly, other signs that are not replaced at the end of their recommended service life remain in use for an additional 9.2 years. Of the 51,222 signs beyond their recommended service lives, 60% are engineering grade signs.
- There are 8,593 regulatory/warning signs and 25,975 other signs in service five years or more beyond their recommended service life. This represents 5% and 22% respectively of the state highway signs in each category. Of the 34,568 signs that are at least five years beyond their recommended service life, 84% have engineering grade face material.
- There are 30,044 Type – F Fluorescent signs in service, again up significantly from 22,165 in 2013. Among those, 621 signs (2%) remain in use beyond their recommended service life, with only 95 (0.3%) at 5 years or more beyond their service life.

### **Wisconsin: Trend of Sign Condition**

	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life <sup>4</sup>	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life <sup>4</sup>
2006	157,742	31%	49,457	5.0	126,362	55%	69,051	5.9
2007	160,206	25%	40,548	4.8	125,891	56%	70,099	6.3
2008	163,215	23%	37,060	4.7	124,333	55%	68,430	6.3
2009	166,741	23%	37,839	4.9	128,953	51%	65,350	7.3
2010	168,653	17%	29,313	5.3	121,743	44%	53,561	7.7
2011	171,202	15%	25,930	5.3	120,486	39%	47,568	8.5
2012	176,712	12%	20,399	5.3	118,509	37%	44,225	8.1
2013	181,763	9%	17,237	6.8	117,655	33%	39,041	9.1
<b>2014</b>	<b>188,872</b>	<b>8.56%</b>	<b>16,169</b>	<b>6.1</b>	<b>117,346</b>	<b>29.87%</b>	<b>35,053</b>	<b>9.2</b>

### **Regions 2014: Sign Condition**

	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life <sup>4</sup>	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life <sup>4</sup>
<b>Region</b>								
NC	29,941	4%	1,203	4.5	17,264	14%	2,464	6.7
NE	27,181	11%	3,050	6.3	15,800	26%	4,049	8.7
NW	36,264	8%	2,722	4.7	24,372	33%	8,133	8.6
SE	49,019	12%	5,976	7.5	29,212	40%	11,549	9.0
SW	46,467	7%	3,218	5.1	30,698	29%	8,858	10.9

<sup>4</sup> When comparing the 'Average years beyond service life column', please note that starting with the 2006 data the useful life standard for signs with high intensity face material changes from 10 years to 12 years. Useful life standard for engineer-grade signs remained at 7 years.

### Regions 2014: Trend of Routine Replacement of Signs

Region	Regulatory/Warning/School Signs					Detour/object marker/recreation/guide Signs			
	Year	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
NC	2006	26,117	35%	9,097	5.4	20,152	61%	12,342	6.5
	2007	26,663	25%	6,660	4.5	19,226	60%	11,494	6.5
	2008	28,917	18%	5,272	4.5	18,477	51%	9,456	6.7
	2009	28,531	18%	5,243	4.5	19,733	40%	7,843	7.0
	2010	28,851	16%	4,506	4.4	18,802	36%	6,746	6.5
	2011	28,938	15%	4,485	3.8	18,679	34%	6,379	7.0
	2012	29,179	7%	2,007	3.5	17,654	29%	5,066	4.9
	2013	29,353	6%	1,678	4.7	17,197	20%	3,469	6.9
	2014	29,941	4%	1,203	4.5	17,264	14%	2,464	6.7
NE	2006	21,520	39%	8,463	5	21,517	60%	12,953	5.5
	2007	21,887	39%	8,459	5.3	21,776	64%	13,831	6.1
	2008	22,375	38%	8,426	5.4	22,138	65%	14,314	6.5
	2009	24,932	36%	8,939	6.8	23,959	59%	14,244	8.8
	2010	25,191	29%	7,217	7.3	20,063	51%	10,185	8.9
	2011	25,629	23%	5,821	7.8	18,055	39%	7,105	9.6
	2012	26,294	20%	5,221	7.3	16,328	34%	5,580	9.3
	2013	26,597	13%	3,548	7.2	15,816	28%	4,424	9.1
	2014	27,181	11%	3,050	6.3	15,800	26%	4,049	8.7
NW	2006	34,087	26%	8,883	4.7	31,874	52%	16,544	5.1
	2007	33,786	19%	6,372	4.4	31,566	54%	16,962	5.3
	2008	32,837	16%	5,321	4.3	29,798	55%	16,337	5.2
	2009	33,400	14%	4,795	4.6	28,522	48%	13,786	6.3
	2010	33,988	12%	4,046	5.0	27,007	39%	10,637	6.9
	2011	33,909	11%	3,648	4.8	26,867	38%	10,117	7.6
	2012	33,958	8%	2,560	5.1	26,293	40%	10,502	7.7
	2013	34,492	8%	2,683	5.4	25,649	38%	9,711	8.4
	2014	36,264	8%	2,722	4.7	24,372	33%	8,133	8.6
SE	2006	35,226	30%	10,426	4.7	26,987	48%	12,835	5.7
	2007	36,390	28%	10,234	5	27,341	49%	13,386	6.2
	2008	37,249	28%	10,461	4.7	27,477	51%	14,133	6.2
	2009	38,563	28%	10,807	5.3	27,203	53%	14,341	6.9
	2010	39,451	22%	8,510	6.0	26,287	48%	12,491	7.6
	2011	40,870	20%	8,244	6.7	26,875	45%	12,205	8.3
	2012	43,216	16%	7,085	7.4	27,567	45%	12,286	8.6
	2013	45,174	14%	6,390	8.0	28,260	44%	12,327	8.7
	2014	49,019	12%	5,976	7.5	29,212	40%	11,549	9.0
SW	2006	40,792	31%	12,588	5.1	25,832	56%	14,377	6.9
	2007	41,480	21%	8,823	4.7	25,982	56%	14,426	7.4
	2008	41,837	18%	7,580	3.9	26,443	54%	14,190	7.4

Regulatory/Warning/School Signs						Detour/object marker/recreation/guide Signs			
Region	Year	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	2009	41,315	19%	8,055	4.4	29,536	51%	15,136	8.2
	2010	41,172	12%	5,034	5.1	29,584	46%	13,502	9.5
	2011	41,856	9%	3,732	5.2	30,010	39%	11,762	10.5
	2012	44,065	8%	3,526	5.4	30,667	35%	10,791	11.1
	2013	46,147	6%	2,938	6.6	30,733	30%	9,110	11.3
	2014	46,467	7%	3,218	5.1	30,698	29%	8,858	10.9

### ***Wisconsin and Regions 2014: Sign Face Material Distribution***

Face		Region					Statewide	
Grade	Type	NC	NE	NW	SE	SW	Total	Percentage
1	Non-Reflective	7	3	284	56	21	371	0.1%
	Other or Varies	75	0	170	18	306	569	0.2%
	Reflective - Engineering Grade	3,414	3,462	7,169	11,003	8,556	33,604	11.0%
2	Type D - Diamond Grade	-	-	-	-	-	-	-
	Type F - Fluorescent	4,736	6,986	7,329	4,364	6,629	30,044	9.8%
	Type H - High Intensity	7,666	4,668	11,418	11,387	18,910	54,049	17.7%
	Type HP - Prismatic High Intensity	31,093	27,087	33,981	50,659	42,117	184,937	60.4%
	Type SH - Super High Intensity	214	775	285	744	626	2,644	0.9%
Total		47,205	42,981	60,636	78,231	77,165	306,218	100%

### ***Wisconsin and Regions: Sign Face Material Trends***

Region	2011		2012		2013		2014	
	Engineering Grade	High Intensity	Engineering Grade	High Intensity	Engineering Grade	High Intensity	Engineering Grade	High Intensity
NC	8,928	38,014	6,966	39,867	5,050	41,500	3,496	43,709
NE	11,125	32,240	7,460	35,162	4,740	37,673	3,465	39,516
NW	13,704	46,833	11,677	48,574	10,200	49,941	7,623	53,013
SE	17,641	49,951	15,400	55,383	13,416	60,018	11,077	67,154
SW	16,149	55,348	13,856	60,876	11,209	65,671	8,883	68,282
State wide	67,547	222,386	55,359	239,862	44,615	254,803	34,544	271,674
	23%	77%	19%	81%	14.9%	85.1%	11.3%	88.7%

### ***Regions 2014: Sign Face Material by Group***

	<b>Region</b>	<b>Engineering Grade</b>	<b>High Intensity</b>	<b>Total</b>
<b>Reg/Warning Signs</b>	NC	1,218	28,723	29,941
	NE	1,133	26,048	27,181
	NW	1,404	34,860	36,264
	SE	3,343	45,676	49,019
	SW	1,100	45,367	46,467
	<b>Statewide</b>	8,198	180,674	188,872
		<b>4%</b>	<b>96%</b>	
<b>Other Signs</b>	NC	2,278	14,986	17,264
	NE	2,332	13,468	15,800
	NW	6,219	18,153	24,372
	SE	7,734	21,478	29,212
	SW	7,783	22,915	30,698
	<b>Statewide</b>	26,346	91,000	117,346
		<b>22%</b>	<b>78%</b>	

## Wisconsin and Regions 2014: Sign Age Distribution by Group

### Regulatory/warning/school signs

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	12,947	3,096	3,068	3,303	1,966	1,807	2,538	257	128	193	118	452	55	29,941
	43%	10%	10%	11%	7%	6%	8%	1%	0%	1%	0%	2%	0%	100%
NE	16,350	1,263	1,801	2,115	847	419	1,334	514	388	255	209	1,099	585	27,181
	60%	5%	7%	8%	3%	2%	5%	2%	1%	1%	1%	4%	2%	100%
NW	18,286	2,025	2,507	4,295	2,806	2,034	1,577	822	354	238	211	817	280	36,264
	50%	6%	7%	12%	8%	6%	4%	2%	1%	1%	1%	2%	1%	100%
SE	24,899	5,612	3,247	3,008	2,468	1,872	1,800	939	417	304	237	2,683	1,396	49,019
	51%	11%	7%	6%	5%	4%	4%	2%	1%	1%	0%	5%	3%	100%
SW	18,757	2,831	3,509	5,888	4,082	4,770	3,110	1,262	330	236	164	748	478	46,467
	40%	6%	8%	13%	9%	10%	7%	3%	1%	1%	0%	2%	1%	100%
State	91,239	14,827	14,132	18,609	12,169	10,902	10,359	3,794	1,617	1,226	939	5,799	2,794	188,872
	48%	8%	7%	10%	6%	6%	5%	2%	1%	1%	0%	3%	1%	100%

### Detour/object marker/recreation/guide Signs

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	6,501	2,999	1,638	652	1,057	620	1,222	273	111	437	115	1,023	505	17,264
	38%	17%	9%	4%	6%	4%	7%	2%	1%	3%	1%	6%	3%	100%
NE	7,820	758	1,246	756	441	262	464	317	243	335	151	1,482	1,521	15,800
	49%	5%	8%	5%	3%	2%	3%	2%	2%	2%	1%	9%	10%	100%
NW	8,262	1,623	1,438	1,488	1,725	888	784	579	203	1,051	279	3,531	2,490	24,372
	34%	7%	6%	6%	7%	4%	3%	2%	1%	4%	1%	14%	10%	100%
SE	9,698	2,447	1,479	1,020	1,002	805	1,140	657	1,113	1,020	318	4,365	4,076	29,212
	33%	8%	5%	3%	3%	3%	4%	2%	4%	3%	1%	15%	14%	100%
SW	10,905	2,525	1,685	1,184	1,172	1,001	1,278	1,157	357	283	79	2,657	4,325	30,698
	36%	8%	5%	4%	4%	3%	4%	4%	1%	1%	0%	9%	14%	100%
State	43,186	10,352	7,486	5,100	5,397	3,576	4,888	2,983	2,027	3,126	942	13,058	12,917	117,346
	37%	9%	6%	4%	5%	3%	4%	3%	2%	3%	1%	11%	11%	100%



## Wisconsin and Regions 2014: Sign Age Distribution of High Intensity Signs

### Type F - Fluorescent

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	4,237	75	62	95	55	47	105	25	20	10	5	0	0	4,736
	89%	2%	1%	2%	1%	1%	2%	1%	0%	0%	0%	0%	0%	100%
NE	6,778	22	23	15	6	7	26	25	15	34	10	15	10	6,986
	97%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
NW	6,876	44	57	90	91	57	47	29	19	4	11	0	0	7,329
	94%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	100%
SE	3,665	175	85	77	55	39	87	39	15	44	42	14	17	4,364
	84%	4%	2%	2%	1%	1%	2%	1%	0%	1%	1%	0%	0%	100%
SW	5,816	82	69	61	75	124	103	34	10	57	78	28	11	6,629
	88%	1%	1%	1%	1%	2%	2%	1%	0%	1%	1%	0%	0%	100%
State	27,372	398	296	338	282	274	368	152	79	149	146	57	38	30,044
	91%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	100%

### Type H - High Intensity

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	224	459	141	431	1,346	1,878	2,412	325	103	114	47	71	73	7,666
	3%	6%	2%	6%	18%	24%	31%	4%	1%	1%	1%	1%	1%	100%
NE	294	69	108	421	323	434	1,306	502	217	212	143	447	192	4,668
	6%	1%	2%	9%	7%	9%	28%	11%	5%	5%	3%	10%	4%	100%
NW	588	169	510	755	2,046	2,466	2,038	1,166	330	833	192	249	73	11,418
	5%	1%	4%	7%	18%	22%	18%	10%	3%	7%	2%	2%	1%	100%
SE	182	119	116	156	1,163	2,257	2,546	1,321	1,237	739	331	910	295	11,387
	2%	1%	1%	1%	10%	20%	22%	12%	11%	6%	3%	8%	3%	100%
SW	824	35	48	260	4,043	5,490	4,102	2,265	532	274	78	314	309	18,910
	4%	0%	0%	1%	21%	29%	22%	12%	3%	1%	0%	2%	2%	100%
State	2,112	851	923	2,023	8,921	12,525	12,404	5,579	2,419	2,172	791	1,991	942	54,049
	4%	2%	2%	4%	17%	23%	23%	10%	4%	4%	1%	4%	2%	100%

**Type HP - Prismatic High Intensity**

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	14,812	5,459	4,443	3,414	1,471	457	344	113	90	154	46	183	70	31,093
	48%	18%	14%	11%	5%	1%	1%	0%	0%	0%	0%	1%	0%	100%
NE	16,490	1,894	2,884	2,406	918	191	428	197	289	296	159	609	322	27,087
	61%	7%	11%	9%	3%	1%	2%	1%	1%	1%	1%	2%	1%	100%
NW	18,989	3,381	3,311	4,718	2,171	303	193	112	108	281	126	216	51	33,981
	56%	10%	10%	14%	6%	1%	1%	0%	0%	1%	0%	1%	0%	100%
SE	30,110	7,722	4,464	3,771	2,229	363	293	226	259	195	111	483	259	50,659
	59%	15%	9%	7%	4%	1%	1%	0%	1%	0%	0%	1%	1%	100%
SW	22,616	5,091	4,922	6,698	1,099	144	142	101	137	183	48	140	138	42,117
	54%	12%	12%	16%	3%	0%	0%	0%	0%	0%	0%	0%	0%	100%
State	103,017	23,547	20,024	21,007	7,888	1,458	1,400	749	883	1,109	490	1,631	840	184,937
	56%	13%	11%	11%	4%	1%	1%	0%	0%	1%	0%	1%	0%	100%

**Type SH - Super High Intensity**

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	170	13	6	2	2	0	2	1	2	4	0	3	6	214
	79%	6%	3%	1%	1%	0%	1%	0%	1%	2%	0%	1%	3%	100%
NE	603	33	30	13	16	2	21	5	8	11	5	17	11	775
	78%	4%	4%	2%	2%	0%	3%	1%	1%	1%	1%	2%	1%	100%
NW	82	25	14	74	67	2	0	1	0	10	3	7	0	285
	29%	9%	5%	26%	24%	1%	0%	0%	0%	4%	1%	2%	0%	100%
SE	630	36	10	7	6	3	5	5	8	12	2	14	2	744
	85%	5%	1%	1%	1%	0%	1%	1%	1%	2%	0%	2%	0%	100%
SW	387	77	7	0	14	0	3	4	0	4	7	14	31	626
	62%	12%	1%	0%	2%	0%	0%	1%	0%	1%	1%	2%	5%	100%
State	1,872	184	67	96	105	7	31	16	18	41	17	55	50	2,644
	71%	7%	3%	4%	4%	0%	1%	1%	1%	2%	1%	2%	2%	100%

## 2014 Winter: Compass Report on Winter Operations

The Bureau of Highway Operations issues two reports on winter. This Compass report presents measures for winter maintenance, on state highways from November 1, 2013 to April 30, 2014, focused on a few key winter operations outcomes critical to drivers and taxpayers, and is directed toward a general audience. The bureau's other winter report, the Annual Winter Maintenance Report, focuses on operational measures and analysis, and is directed toward front-line operations managers.

In order to facilitate comparisons from one winter to the next, as well as between counties within the same season, WisDOT uses several tools and methodologies to analyze individual storms and the winter as a whole. The Winter Severity Index (WSI) is a composite measure that includes number of snow and freezing rain events, snow amount, storm duration, and number of incidents because the WSI is crucial for understanding and comparing winter operations outcomes.

The 2013-14 Wisconsin winter season was the most severe the state has seen in its recent history. The season started out mild with a benign November, but numerous fairly light snow events impacted Wisconsin almost non-stop from December until April. The statewide average was 43 snow events per county, with Iron County with a high of 69. The statewide average WSI in 2013-14 was 133.6, significantly higher than the previous year, at 115.2, and above any of the last five years.

### Statewide Measures for Winter:

	2009-10	2010-11	2011-12	2012-13	2013-14
Roads to bare/wet pavement within WisDOT targets	67%	79%	79%	73%	63%
Cost per lane mile	\$2,222	\$2,696	\$1,656	\$2,778	\$3,304
Winter Severity Index (WSI)	82.4	119.2	75.4	115.2	133.6
Cost per lane mile per WSI point	\$26.97	\$22.62	\$21.96	\$24.11	\$24.73
Winter weather crashes per 100 million vehicle miles traveled	22	35	20	29	44

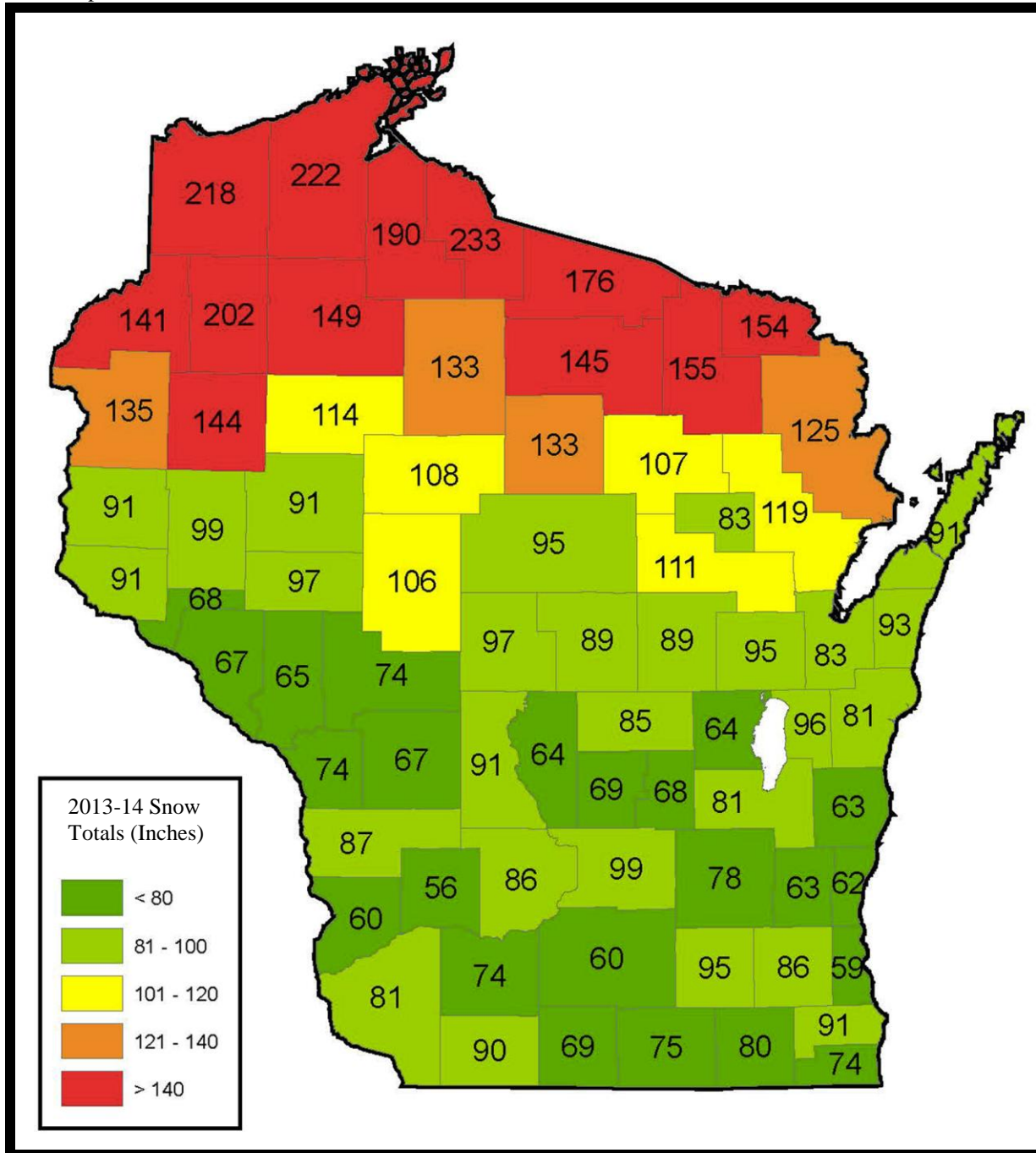
### Key Observations:

- The 2013-14 winter was the most costly winter on record, surpassing that of 2012-13. The total billed cost of statewide winter operations this winter was \$113.5 million, making it 19 percent more costly than 2012-2013 – Salt expenditures increased 7 percent, equipment expenditures by 30 percent, labor expenditures by 22 percent, county-furnished materials expenditures by 95 percent, and administration expenditures by 7 percent.
- Statewide, the average snowfall was approximately 101.5 inches, well above the 30 year average of 52.4 inches and slightly greater than the average of the previous winter (93 inches). Snowfall recorded in 2013-14 winter season varied across the state. The highest snowfall was in Iron County, at 233 inches; the lowest was in Richland County, at 56 inches.
- The statewide average number of winter storms was 43 in 2013-2014, more than the 2012-2013 average of 36. Iron County experienced the most storms, 69, while Kewaunee County had the least, at 30. The number of storms has a more significant impact on resources expended than snowfall totals, since staff and equipment must be mobilized for both light and heavy snow or freezing rain falls.
- Winter maintenance crews achieved bare/wet pavement condition within WisDOT target time on 63 percent, down from 73 percent in the previous winter. From storm to storm, most of the variability in a county's ability to achieve bare/wet pavement within the target times is due to weather effects (type, duration and severity of storms throughout the winter season).
- In the winter of 2013-2014, there were 11,837 reported winter weather crashes (those that occurred on pavements covered with snow, slush or ice. The crash rate (number of crashes per 100 million vehicle miles traveled) increased drastically (51 percent) this winter to a statewide average of 44, up from last winter's crash rate of 29, the highest the state has seen in five years.

## 2013-2014 Winter Season Snowfall for Wisconsin

*Note: The map below is in color. If you are not viewing a color copy, please contact the Compass Program Manager at the Bureau of Highway Operations.*

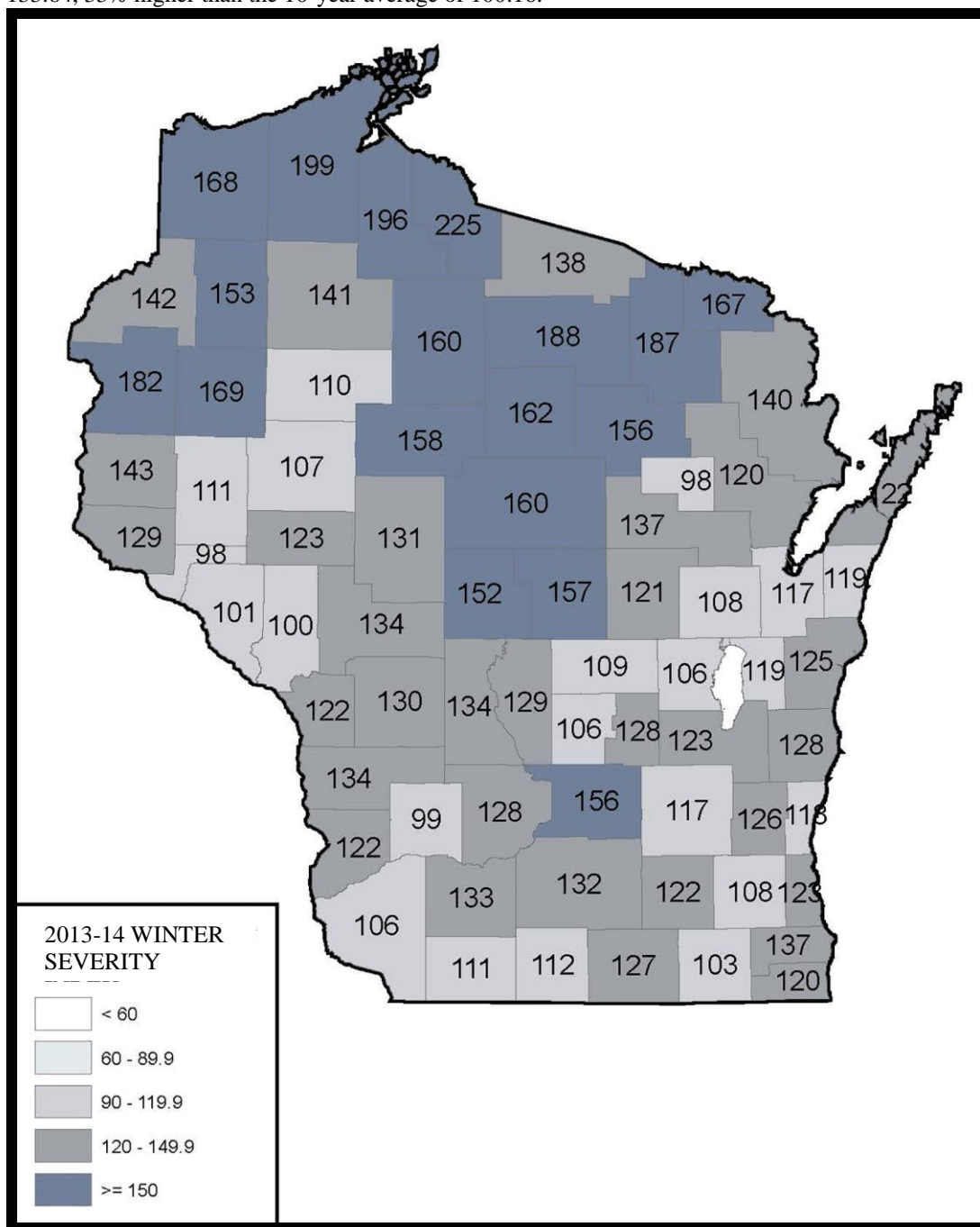
The National Weather Service (NWS) map below shows the snowfall for Wisconsin during the period November 1, 2013 to April 30, 2014.



## 2013-2014 Wisconsin Winter Severity Index

*Note: The map below is in color. If you are not viewing a color copy, please contact the Compass Program Manager at the Bureau of Highway Operations.*

Data from weekly storm reports are used to calculate the Winter Severity Index for each county according to a weighted formula. Results are scaled such that the 5-year average is 100. The average for the 2013-2014 winter was 133.64, 33% higher than the 10-year average of 100.16.



## Winter by the Numbers

Category	Measure	2009-10	2010-11	2011-12	2012-2013	2013-2014
<b>Infrastructure</b>	Lane miles	33,532	33,776	33,944	34,192	34,339
	Road Weather Information System (RWIS) stations	58	60	60	60	58
	Patrol sections	767	759	770	769	753.5
	Avg. patrol section length (miles)	43.72	44.03	44.08	44.46	45.57
<b>Material usage</b> <sup>5</sup>	Salt used	408,523 tons 12.2 tons per lane mile	573,253 tons 17.0 tons per lane mile	355,519 tons 10.5 tons per lane mile	621,207 tons 18.1 tons per lane mile	669,807 tons 19.5 tons per lane mile
	Average cost of salt per ton	\$60.92	\$58.55	\$59.18	\$58.34	\$60.40
	Pre-wetting liquid used	1,099,971 gal	1,529,230 gal	1,082,163 gal	2,124,834 gal	2,970,166 gal.
	Anti-icing agent used	683,144 gal	714,860 gal	1,164,394 gal	1,110,886 gal	887,415 gal.
	Sand used	19,081 cu. yd.	18,941 cu. yd.	7,513 cu. yd.	18,589 cu. yd.	58,870 cu. yd.
<b>Services</b>	Regular county labor hours on winter <sup>6</sup>	133,715	176,842	103,332	212,090	244,602
	Overtime county labor hours on winter	106,578	175,373	82,657	137,225	182,311
	Public service announcements aired	6,754 total 6,122 radio; 632 TV	6,597 total 6,010 radio; 587 TV	6,668 total 6,016 radio 652 TV	7,154 total 5,919 radio 1,235 TV	3,184 total 2,704 radio; 480 TV
	Cost of public service announcements	\$36,000 (\$259,062 market value)	\$36,000 (\$209,144 market value)	\$36,000 (\$268,399 market value)	\$36,000 (\$241,380 market value)	\$36,000 (\$109,140 market value)
<b>Equipment and Technology</b>	Salt spreaders equipped with on-board pre-wetting unit <sup>7</sup>	N/A	N/A	N/A	N/A	N/A
	Counties with salt spreaders equipped with on-board pre-wetting unit	55 of 72 (76%)	58 of 72 (80%)	58 of 72 (80%)	58 of 72 (80%)	58 of 72 (80%)

<sup>5</sup> All material usage quantities are from the county storm reports except for salt. The salt quantities are from the Salt Inventory Reporting System.

<sup>6</sup> Costs and hours come from county storm reports, and reflect sanding, salting, plowing and anti-icing efforts.

<sup>7</sup> County equipment may be used on either state or county roads.

Category	Measure	2009-10	2010-11	2011-12	2012-2013	2013-2014
	Salt spreaders equipped with ground-speed controller unit	N/A	N/A	N/A	N/A	N/A
	Counties with salt spreaders equipped with ground-speed controller unit	67 of 72 (93%)	65 of 72 (90%)	68 of 72 (94%)	67 of 72 (93%)	69 of 72 (96%)
	Underbody plows	572	589	619	658	658
	Counties with underbody plows	55 of 72 (76%)	55 of 72 (76%)	57 of 72 (79%)	55 of 72 (76%)	56 of 72 (78%)
	Counties equipped to use anti-icing agents	65 of 72 (90%)	65 of 72 (90%)	66 of 72 (92%)	66 of 72 (92%)	66 of 72 (92%)
	Counties that used anti-icing agents during the winter season	62 of 72 (86%)	61 of 72 (85%)	60 of 72 (83%)	65 of 72 (90%)	63 of 72 (88%)

## Compass Winter Operations Measures

### Time to Bare/wet Pavement

In order to gain the most benefit from limited resources, counties provide different levels of service on highways according to the amount of daily traffic they receive. High-volume roads typically receive 24-hour coverage, while lower-volume roads receive 18-hour coverage. The Winter Highway Classifications table included at the end of this report shows guidelines for determining coverage type.

WisDOT has set targets for “Time to Bare/wet Pavement” for the different coverage types. For roads that receive 24-hour coverage the target is 4 hours, while for roads with 18-hour coverage the target is 6 hours. After a storm event, counties reports the time to bare/wet pavement for either all 24-hour coverage roads or all 18-hour coverage roads, depending on which is predominant in the county. In some cases, “Never bare/wet” is reported, meaning that it took more than 24 hours to achieve bare/wet condition, or the next storm began before the bare/wet condition was achieved. A county reports “Always Bare/wet” if the roadways were bare/wet the entire time crews were out. The following table shows the percent of reported events for which the counties met these targets. In 2013-2014, targets were met statewide for 63 percent of the reported storm events, down from 73 percent in the previous year.

Highway Coverage Category	Roads to Bare/wet Pavement within WisDOT Targets					
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
24-Hour	61%	70%	83%	83%	75%	66%
18-Hour	56%	65%	75%	76%	70%	59%
Statewide	58%	67%	79%	79%	73%	63%
Target	70%	70%	70%	70%	70%	70%



Further analysis suggests that variability of time to bare/wet pavement within a category is due more to weather effects (type, duration and severity of storms throughout the winter season) than to differences in the level of effort or relative resources.

### Costs per Lane Mile versus Winter Severity Index

The following table lists the WSI and total cost per lane mile for winter operations in each Region. The costs were obtained from the WisDOT's FOS (Financial Operating System). The statewide average cost per lane mile was \$3,304 with an average severity index of 133.64. Total costs include material, labor, equipment, and administrative costs.

Region	Average WSI				Cost/LM				Relative cost per WSI point			
	2010-11	2011-12	2012-13	2013-14	2010-11	2011-12	2012-13	2013-14	2010-11	2011-12	2012-13	2013-14
NC	134	88	132	<b>148.9</b>	\$2,448	\$1,755	\$2,688	<b>\$3,067</b>	\$18	\$20	\$20	<b>\$20.59</b>
NE	104	69	100	<b>120.8</b>	\$2,592	\$1,548	\$2,788	<b>\$3,050</b>	\$25	\$23	\$28	<b>\$25.25</b>
NW	131	79	128	<b>139.7</b>	\$2,397	\$1,446	\$2,714	<b>\$3,139</b>	\$18	\$18	\$21	<b>\$22.63</b>
SE	95	56	86	<b>119.3</b>	\$3,434	\$2,055	\$2,816	<b>\$4,033</b>	\$36	\$37	\$33	<b>\$33.81</b>
SW	109	69	104	<b>124.0</b>	\$2,716	\$1,572	\$2,865	<b>\$3,274</b>	\$25	\$23	\$28	<b>\$26.40</b>
Statewide	119	75	115	<b>133.6</b>	\$2,696	\$1,656	\$2,778	<b>\$3,304</b>	\$23	\$22	\$24	<b>\$24.72</b>

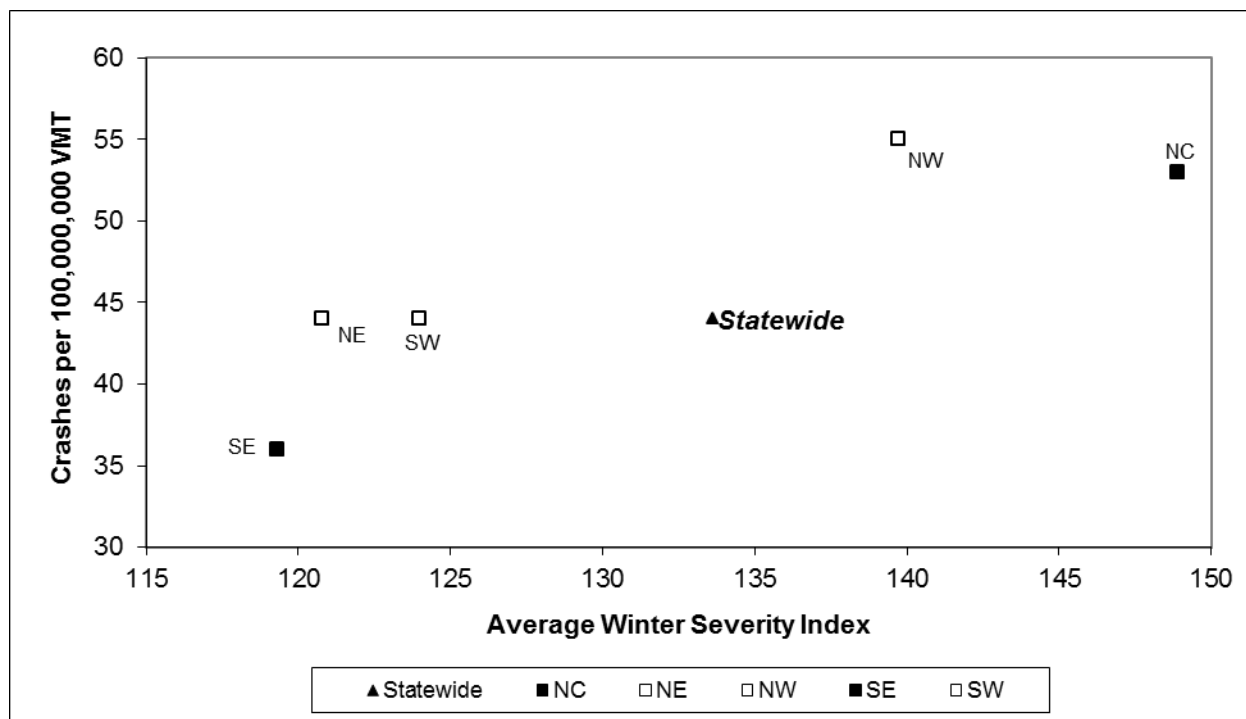
### Winter Weather Crashes

The following table shows the four-year trend of crashes per 100 million VMT statewide and in each Region. The state average is 44 winter crashes per 100 million VMT. In 2013-14 the NW has the largest number of crashes per VMT at 55 winter crashes per 100 million VMT.

Scope	VMT* (100 million)	Crashes	Crashes per 100 million VMT				Average Winter Severity Index			
			2010-11	2011-12	2012-13	2013-14	2010-11	2011-12	2012-13	2013-14
NC	33.82	1,808	39	23	34	<b>53</b>	134	88	132	<b>148.9</b>
NE	47.05	2,070	38	23	34	<b>44</b>	104	69	100	<b>120.8</b>
NW	39.2	2,155	39	22	37	<b>55</b>	131	79	128	<b>139.7</b>
SE	81.14	2,905	27	16	19	<b>36</b>	95	56	86	<b>119.3</b>
SW	66.54	2,899	37	22	32	<b>44</b>	109	69	104	<b>124.0</b>
Statewide	267.75	11,837	35	20	29	<b>44</b>	119	75	115	<b>133.6</b>

\*100 million vehicle miles traveled (VMT) for November 1, 2013 through April 30, 2014 determined from annual average daily traffic (AADT) counts, gallons of gas sold, fuel tax collected, and average vehicle miles per gallon.

Based on the information from the table above, the following figure shows the relationship between the severity of the winter and the number of crashes per VMT in the regions and statewide.



## Winter Data, Definitions, and Categories

### Data

Unless otherwise noted, all material and labor figures come from the winter storm reports that are submitted by each county for every event or anti-icing procedure throughout the winter season. The data quality is unknown. Weather, road conditions, and materials usages are based upon the observations of county patrol superintendents and sometimes on their expert judgment and, as such, contain more variability than direct measurements.

### Definitions

*Dollars:* Cost data are from the fiscal year, July 1, 2013 to June 30, 2014.

*Winter:* November 1 through April 30, unless otherwise noted.

*Winter Activities:* Actual cost data incorporates all winter activities, including putting up snow fence, transporting salt, filling salt sheds, thawing out frozen culverts, calibrating salt spreaders, producing and storing salt brine, and anti-icing applications, as well as plowing and salting. Costs from storm reports, however, cover only plowing, sanding, salting, and anti-icing.

*Winter crash:* Motor vehicle crashes that occur on pavements with snow, ice or slush present.

*Roads:* The roads referred to in this report are state maintained highways, including Interstate and US highways. See the following tables for groupings.

### Categories & Groupings

#### *Winter Service Group Assignments*

Winter Service Group	Definition	County Names	Number of Counties	% of Counties
A	<ul style="list-style-type: none"> <li>1,000 or more lane miles and all counties have some roads with six or more lanes</li> <li>900,000 or more square feet of bridge deck</li> <li>20 or more plow routes; most routes are 24 hour routes</li> </ul>	Dane, Milwaukee, Waukesha	3	4%
B	<ul style="list-style-type: none"> <li>600 to 1,000 lane miles; some counties have roads with six or more lanes; all counties have high mileage on four-lane roads</li> <li>400,000 to 900,000 square feet of bridge deck</li> <li>14 to 20 plow routes; most routes are 24 hour routes</li> </ul>	Brown, Chippewa, Columbia, Dodge, Eau Claire, Fond du Lac, Grant, Jefferson, Kenosha, Marathon, Monroe, Outagamie, Portage, Racine, Rock, Sauk, St. Croix, Walworth, Washington, Waupaca, Winnebago	21	29%
C	<ul style="list-style-type: none"> <li>450 to 600 lane miles; some counties have roads with six or more lanes; all counties medium mileage on four-lane roads</li> <li>170,000 to 450,000 square feet</li> </ul>	Barron, Clark, Crawford, Douglas, Dunn, Iowa, Jackson, Juneau, La Crosse, Lincoln, Manitowoc, Oconto, Pierce, Shawano, Sheboygan, Vernon, Wood	17	24%

Winter Service Group	Definition	County Names	Number of Counties	% of Counties
	of bridge deck • 7 to 14 plow routes; mix of 18 and 24 hour routes			
D	• 325 to 450 lane miles; no counties have roads with six or more lanes; all counties have low to medium mileage on four-lane roads; highest mileage is in two-lane roads • 140,000 to 170,000 square feet of bridge deck • 4 to 7 plow routes; mix of 18 and 24 hour routes	Bayfield, Buffalo, Door, Green, Green Lake, Lafayette, Marinette, Marquette, Oneida, Ozaukee, Polk, Richland, Trempealeau, Washburn, Waushara	15	21%
E	• 175 to 325 lane miles; no counties have roads with six or more lanes; few counties have four-lane roads; medium to high mileage on two-lane roads • 50,000 to 140,000 square feet of bridge deck • 2 to 4 plow routes; nearly all with 18 hour routes	Ashland, Burnett, Calumet, Forest, Iron, Langlade, Pepin, Price, Rusk, Sawyer, Taylor, Vilas	12	17%
F	• 90 to 175 lane miles; no counties have roads with six or more lanes; counties have 0 to 5 lane miles of four-lane roads; two-lane roads have low to medium mileage • Less than 50,000 square feet of bridge deck • Fewer than 2 plow routes; all 18 hour routes	Adams, Florence, Kewaunee, Menominee	4	6%

*Passable Roadway Expectation Categories*

Category	Definition	Lane miles	% of total
1	Major urban freeways and most highways with six lanes and greater	3,013	9%
2	High volume four-lane highways (ADT $\geq$ 25,000) and some four-lane highways (ADT < 25,000), and some 6-lane highways.	3,151	9%
3	All other four-lane highways (ADT < 25,000)	8,992	26%
4	Most high volume two-lane highways (ADT $\geq$ 5,000) and some 2-lanes (ADT < 5000)	4,603	13%
5	All other two-lane highways	14,580	42%
Total		34,339	

*Winter Highway Classification Table<sup>8</sup>*

Typical Types of Highways	Winter Highway Class	Coverage Type
<ul style="list-style-type: none"> <li>Major Urban Freeways</li> <li>Most 6 Lanes and Greater</li> </ul>	High Volume	24-hr service as conditions require
<ul style="list-style-type: none"> <li>Some 6-Lanes</li> <li>High Volume 4 Lanes with AADT &gt;25,000 and Some 4- Lanes with AADT &lt;25,000</li> <li>Most 2-lane with AADT &gt;5000 and Some 2-Lanes with AADT &lt;5000</li> <li>Includes Interstates</li> </ul>	High Volume	24-hr service as conditions require
<ul style="list-style-type: none"> <li>Some 4 Lanes with ADT &lt;25,000</li> <li>Most 2-Lanes With AADT &lt;5000 and Some 2-Lanes with AADT &gt;5000</li> </ul>	All Other	18-hr coverage as conditions require Some minimal ability to respond to emergencies should be provided during hours that full coverage is not provided

<sup>8</sup> The above highway classifications and coverage times are intended as a guide in winter maintenance operations and changes may be deemed appropriate based on local conditions.

## 2014 Bridges: Compass Report on Condition, Maintenance, and Inspection Backlog

The Compass bridge report uses data from the Highway Structures Information System (HSI) online report. Data was taken during the period of April 1<sup>st</sup> to April 28<sup>th</sup>, 2015.

### Key observations:

#### Bridge Deck Condition Distribution

- Statewide, 31% of decks are in Fair condition, receiving an NBI rating of 5 or 6, and need reactive maintenance. These include 26% of concrete bridges and 43% of steel bridges.
- The NW region has the lowest percent of decks in good condition, at 50%. The SE and NW regions have the highest percentage of decks in poor condition, at 3%, with the former having (SE region) having the most deck area to maintain (15,061,375 ft<sup>2</sup>).
- The NE region (880 bridges) has the best bridge ratings in the state with 88% of decks in Good condition and an impressive 0% in Poor and Critical condition.

#### Bridge Maintenance Needs

- Maintenance actions are those recommended by bridge inspectors for each bridge at the time of inspection.
- The following maintenance actions are recommended as needed. As approaches settle, brush continually grows, decks eventually crack and drainage issues arise at wings, these actions become necessary:
  - Decks - Seal Surface Cracks
  - Approaches - Seal Approach to Paving Block
  - Expansion Joints – Clean
  - IMP - Concrete Overlay
  - Miscellaneous - Cut Brush
  - Decks – Clean and Sweep Deck/Drains
  - Drainage - Repair Washouts / Erosion
  - Expansion Joints – Seal
  - Deck-Patching

#### Wisconsin 2014: Bridge Condition Distribution

	Bridges <sup>1</sup>	Deck Area <sup>1</sup> (ft <sup>2</sup> )	Component	% of bridges in condition			
				Good <sup>2</sup>	Fair <sup>3</sup>	Poor <sup>4</sup>	Critical <sup>4</sup>
All	5,240	53,121,281	Decks	67%	31%	2%	0%
			Superstructures	72%	27%	1%	0%
			Substructures	71%	28%	1%	0%
Concrete	3,795	30,999,729	Decks	72%	26%	2%	0%
			Superstructures	80%	19%	1%	0%
			Substructures	80%	19%	1%	0%
Steel	1,445	22,121,552	Decks	55%	43%	3%	0%
			Superstructures	53%	46%	1%	0%
			Substructures	50%	48%	2%	0%

***Region 2014: Bridge Condition Distribution***

Region	Bridges	Deck Area (ft <sup>2</sup> )	Component	% of bridges in condition			
				Good <sup>2</sup>	Fair <sup>3</sup>	Poor <sup>4</sup>	Critical <sup>4</sup>
NC	673	5,367,106	Decks	69%	30%	1%	0%
			Superstructures	81%	19%	1%	0%
			Substructures	74%	24%	2%	0%
NE	880	9,906,106	Decks	88%	12%	0%	0%
			Superstructures	88%	12%	0%	0%
			Substructures	83%	17%	0%	0%
NW	1,067	9,581,617	Decks	50%	47%	3%	0%
			Superstructures	65%	33%	2%	0%
			Substructures	70%	28%	2%	0%
SE	1,058	15,061,375	Decks	63%	34%	3%	0%
			Superstructures	59%	39%	1%	0%
			Substructures	64%	36%	1%	0%
SW	1,562	13,215,431	Decks	68%	29%	2%	0%
			Superstructures	73%	26%	1%	0%
			Substructures	69%	30%	1%	0%

<sup>1</sup>Concrete and Steel do not sum to All, since one bridge was unclassified

<sup>2</sup>Good: Bridges with NBI rating 7-9 should receive Preventive Maintenance

<sup>3</sup>Fair: Bridges with NBI 5-6 should receive Reactive Maintenance. These bridges are considered backlogged for maintenance

<sup>4</sup>Poor and Critical: Bridges with NBI 0-4 should receive Rehabilitation or Replacement

### Wisconsin and Regions 2014: Bridge Condition

Region	Year	Percent of Bridges Feature in Fair condition			Number of state-maintained bridges	Dollar spent on bridges (in millions)
		Decks	Superstructures	Substructures		
NC	2008	21%	17%	18%	637	
	2009	22%	16%	18%	650	
	2010	26%	17%	20%	653	
	2011	27%	17%	21%	663	
	2012	27%	17%	21%	663	
	2013 <sup>5</sup>	28%	16%	19%	665	
	2014	30%	19%	24%	673	
NE	2008	19%	18%	24%	859	
	2009	19%	19%	22%	874	
	2010	17%	18%	22%	878	
	2011	15%	16%	20%	884	
	2012	13%	14%	18%	893	
	2013 <sup>5</sup>	11%	13%	17%	875	
	2014	12%	12%	17%	880	
NW	2008	45%	31%	29%	1067	
	2009	47%	33%	29%	1072	
	2010	46%	32%	29%	1061	
	2011	47%	33%	30%	1062	
	2012	46%	33%	29%	1063	
	2013 <sup>5</sup>	46%	33%	28%	1067	
	2014	47%	33%	28%	1067	
SE	2008	45%	47%	47%	1055	
	2009	41%	45%	45%	1052	
	2010	41%	45%	43%	1063	
	2011	41%	46%	44%	1068	
	2012	38%	42%	41%	1068	
	2013 <sup>5</sup>	38%	41%	38%	1056	
	2014	34%	39%	36%	1059	
SW	2008	24%	23%	22%	1466	
	2009	24%	23%	23%	1470	
	2010	27%	23%	24%	1507	
	2011	27%	23%	25%	1521	
	2012	28%	23%	25%	1534	
	2013 <sup>5</sup>	27%	24%	26%	1554	
	2014	29%	26%	30%	1562	
Statewide	2008	32%	28%	29%	5084	\$11.78
	2009	31%	28%	28%	5118	\$11.87
	2010	32%	28%	28%	5162	\$12.17
	2011	32%	28%	28%	5198	\$11.62
	2012	31%	27%	27%	5221	\$13.25
	2013 <sup>5</sup>	31%	27%	26%	5217	\$11.69
	2014	31%	27%	28%	5241	\$11.11

<sup>5</sup>Beginning in the 2013 report, pedestrian bridges were excluded in all bridge counts and statistics



### Wisconsin and Regions: Trend of Bridge Maintenance Needs

Region	Year	Percent of Bridges needing maintenance								# of Bridges needing maintenance					
		Maintenance Action													
		Deck – Seal Surface Cracks		Expansion Joints – Seal		Misc. – Cut Brush		Approach – Seal Approach to Paving Block		Deck – Patching		Drainage - Repair Washouts / Erosion		Approach - Wedge Approach	
NC	2009	56%	364	30%	194	11%	71	2%	12	16%	102	9%	58	5%	31
	2010	63%	413	42%	277	14%	93	3%	20	18%	120	14%	89	6%	39
	2011	72%	476	42%	281	16%	109	10%	65	19%	128	14%	92	10%	64
	2012	48%	320	29%	193	15%	97	24%	159	12%	82	11%	76	9%	60
	2013 <sup>5</sup>	50%	334	29%	196	15%	103	28%	189	13%	84	12%	82	10%	64
	2014	53%	357	35%	236	18%	119	34%	228	14%	96	19%	131	11%	74
NE	2009	28%	248	31%	268	7%	63	17%	147	15%	135	15%	127	1%	13
	2010	34%	300	33%	293	9%	79	24%	214	17%	150	16%	143	2%	19
	2011	37%	323	35%	306	9%	83	29%	260	19%	164	16%	144	2%	18
	2012	35%	317	28%	253	8%	74	25%	221	14%	122	13%	115	2%	16
	2013 <sup>5</sup>	42%	366	29%	257	9%	77	26%	225	14%	120	13%	117	2%	16
	2014	51%	448	31%	273	9%	79	34%	297	14%	124	13%	118	2%	14
NW	2009	3%	35	3%	34	2%	21	9%	97	5%	52	6%	67	3%	28
	2010	4%	41	3%	37	4%	43	11%	121	7%	74	9%	93	3%	35
	2011	4%	45	4%	43	5%	56	14%	153	9%	95	13%	135	4%	38
	2012	4%	43	3%	36	5%	58	14%	150	8%	81	12%	130	4%	39
	2013 <sup>5</sup>	4%	44	5%	50	6%	67	16%	170	8%	87	15%	157	5%	51
	2014	5%	54	5%	55	7%	80	18%	190	11%	116	17%	186	6%	63
SE	2009	16%	172	20%	213	23%	238	17%	177	14%	145	16%	164	15%	159
	2010	18%	192	22%	233	25%	268	21%	226	15%	155	19%	201	17%	176
	2011	21%	228	22%	240	26%	277	25%	269	16%	174	22%	230	17%	178
	2012	16%	172	16%	166	17%	183	21%	225	11%	122	15%	162	13%	140
	2013 <sup>5</sup>	17%	183	15%	159	17%	180	24%	249	12%	122	17%	181	14%	143
	2014	18%	186	16%	166	18%	192	28%	298	13%	140	19%	202	14%	149
SW	2009	20%	293	4%	66	25%	369	21%	308	8%	112	12%	181	11%	162
	2010	23%	354	5%	69	29%	443	27%	400	9%	134	15%	229	13%	196
	2011	28%	424	5%	71	34%	515	33%	504	10%	150	18%	277	14%	214
	2012	27%	420	4%	69	26%	393	29%	449	8%	127	16%	244	11%	167
	2013 <sup>5</sup>	29%	456	4%	68	26%	406	32%	499	9%	136	17%	262	11%	171
	2014	35%	548	5%	75	29%	451	37%	579	10%	156	18%	284	12%	192
Statewide	2009	22%	1112	15%	775	15%	762	14%	741	11%	546	12%	597	8%	393
	2010	25%	1300	18%	909	18%	926	19%	981	12%	633	15%	755	9%	465
	2011	29%	1496	18%	941	20%	1040	24%	1251	14%	711	17%	878	10%	512
	2012	24%	1272	14%	717	15%	805	23%	1204	10%	534	14%	727	8%	422
	2013 <sup>5</sup>	27%	1383	14%	730	16%	833	26%	1332	11%	549	15%	799	9%	445
	2014	30%	1593	15%	805	18%	921	30%	1592	12%	632	18%	921	9%	492

<sup>1</sup> Beginning in the 2013 report, pedestrian bridges were excluded in all bridge counts and statistics

## **Appendices**

- A. Program Contributors**
- B. Feature Contribution Categories**
- C. Feature Thresholds and Grade Ranges**
- D. 2014 Highway Maintenance Target Service Levels Memo**
- E. 2014 Maintenance Targets**
- F. 2014 Compass Rating Sheet**
- G. County Data:**
  - 1. Field Review: Shoulders, Drainage, Roadside and Traffic**
  - 2. Signs (routine replacement needs)**
  - 3. Bridge Maintenance Needs**

## **A. Program Contributors**

The Wisconsin Department of Transportation appreciates the significant contributions to the Compass program that were made by the following people:

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 Dan Davis, WisDOT NE Region  
 John Delaney, WisDOT SW Region  
 Bill Demler, Winnebago County  
 Jeff DeMuri, Florence County  
 Dennis Dickman, Monroe County  
 Christopher Elstran, Chippewa County  
 Matt Erickson, Ashland County  
 Randy Franks, Dodge County  
 Andrew Fuhrmann, Calumet County  
 Pat Gavinski, WisDOT SW Region  
 Rollin Gjestvang, Trempealeau County  
 Susan Greeno-Eichinger, WisDOT NC Region  
 Gary Gretzinger, Taylor County  
 Bill Groskopf, WisDOT NC Region  
 Greg Grotegut, Manitowoc County  
 Chad Gudis, Rusk County  
 Tim Hammes, La Crosse County  
 Perry Hargrove, Juneau County  
 David Heil, Waukesha County  
 Byron Henke, Marquette County  
 Robert Hill, Sawyer County  
 Todd Hogan, WisDOT SW Region  
 Brandon Hytinen, WisDOT NE Region  
 Jason Jackman, Douglas County  
 Jason Jilling, WisDOT SE Region  
 Paul Johanik, Bayfield County  
 Al Johnson, WisDOT Central Office

Mike Keichinger, Juneau County  
 Dennis Keyzer, WisDOT NE Region  
 Jason Kirschenlohr, Adams County  
 Jon Knautz, Grant County  
 Todd Kortendick, Racine County  
 Ross Krause, WisDOT NW Region  
 James Krizan, St. Croix County  
 Terry Lammert, WisDOT SW Region  
 Michael Larson, WisDOT NW Region  
 Steve Lawrence, Waupaca County  
 Leonard LeGrave, Kewaunee County  
 Mark Leibham, Sheboygan County  
 Bill Lemerande, Forest County  
 Ted Lundt, Oneida County  
 Jarred Maney, Vilas County  
 Andy Manty, WisDOT NC Region  
 Dick Marti, Green County  
 Andrea Maxwell, WisDOT SE Region  
 David McCabe, Chippewa County  
 Jeff McLaughlin, Waukesha County  
 Brenda McNallan, WisDOT NW Region  
 Carl Meverden, Marinette County  
 Ryan Murray, WisDOT SW Region  
 Gary Myers, Burnett County  
 Todd Myers, Crawford County  
 Gordy Nesselth, Barron County  
 Todd Nieman, WisDOT NC Region  
 Emil "Moe" Norby, Polk County  
 Al Olson, Oconto County  
 Shaun Olson, Dane County  
 Bill Patterson, Waushara County  
 Jon Pauley, Monroe County  
 Kevin Peiffer, WisDOT SE Region  
 Lance Penney, Waupaca County  
 Carl "Buzz" Peterson, Lafayette County  
 Neil Pierce, Rock County  
 Bob Platteter, Buffalo County  
 Dale Poggensee, Walworth County  
 Patricia Pollock, WisDOT NW Region  
 Duane Prachel, Green Lake County  
 Timm Punzel, Jefferson County  
 Dan Raczkowski, Marathon County  
 Perry Raivala, WisDOT NW Region  
 Gale Reinecke, Dunn County  
 Ben Rich, Oneida County  
 Rich Ricksecker, WisDOT NW Region  
 Randy Roloff, Outagamie County  
 Frank Scalzo, Washburn County  
 Daniel Schave, WisDOT NC Region

Paul Schilling, Marathon County  
 Stephen Schlice, Portage County  
 Tom Schmidt, Washington County  
 Dennis Schmunck, WisDOT SE Region  
 Levi Sisbach, Vernon County  
 James Smetana, Jackson County  
 Charles Smith, WisDOT NW Region  
 Pete Strachan, WisDOT SW Region  
 Randy Sudmeier, Iowa County  
 Mike Swartz, Iron County  
 William Tackes, Ozaukee County  
 Randy Teodoro, Kenosha County  
 Alan Thoner, Pierce County  
 Bonnie Tripoli, WisDOT SW Region  
 Jarrod Turk, WisDOT SW Region  
 Michael VanDeWeerd, Lincoln County  
 Nick Vos, WisDOT NC Region  
 Gail Vukodinovich, WisDOT SE Region  
 Richard Walthers, Eau Claire County  
 Ken Washatko, Langlade County  
 Jeff Weber, Lincoln County  
 Jim Weiglein, WisDOT  
 Jeremy Weso, Menominee County  
 Steve Wilke, Menominee County  
 David Woodhouse, Walworth County  
 John Zettler, Fond du Lac County

### **Additional Compass Resources**

Mike Adams, WisDOT Central Office (winter)  
 Dr. Teresa Adams, University of Wisconsin – Madison  
 (data analysis, report)  
 Scot Becker, WisDOT Central Office (bridge)  
 Bruno Castelhamo, WisDOT NC Region (mapping)  
 Mary Kirkpatrick, WisDOT Central Office (desktop  
 publishing)  
 Tim Nachreiner, WisDOT Central Office (database,  
 Rating Sheets)  
 John O'Malley, WisDOT Central Office (segment data)  
 Matt Rauch, WisDOT Central Office (signs)  
 Kyle Schroeckenthaler, University of Wisconsin -  
 Madison (data analysis, report development)  
 Mike Schumacher, WisDOT Central Office (segment  
 data)  
 Mike Sproul, WisDOT Central Office (winter)  
 Bradford Winkelman, University of Wisconsin -  
 Madison (data analysis, report development)

## B. Feature Contribution Categories

		<i>This Feature Contributes Primarily To:</i>				
Element	Feature	Critical Safety	Safety/ Mobility	Stewardship	Ride/ Comfort	Aesthetics
<b>Shoulders</b>	Hazardous Debris	✓				
	Cracking (paved)			✓		
	Drop-off/Build-up (paved)	✓				
	Potholes/Raveling (paved)				✓	
	Cross-Slope (unpaved)		✓			
	Drop-off/Build-up (unpaved)	✓				
	Erosion (unpaved)			✓		
<b>Drainage</b>	Culverts		✓			
	Curb & Gutter			✓		
	Ditches			✓		
	Flumes			✓		
	Storm Sewer System		✓			
	Under-drains/Edge-drains			✓		
<b>Roadside</b>	Fences		✓			
	Litter					✓
	Mowing					✓
	Mowing for Vision		✓			
	Woody Vegetation		✓			
	Woody Veg. Control for Vision		✓			
<b>Traffic and Safety</b>	Centerline Markings	✓				
	Delineators		✓			
	Edgeline Markings	✓				
	Detour/object marker/recreation/guide signs (emerg. repair)				✓	
	Detour/object marker/recreation/guide signs (routine repair)				✓	
	Protective Barriers	✓				
	Reg./Warning Signs (emerg.)	✓				
	Reg./Warning Signs (routine)		✓			
	Special Pavement Markings		✓			

**Category Definitions:**

Critical safety: Critical safety features that would necessitate immediate action to remedy if not properly functioning.

Safety: Highway features and characteristics that protect users against – and provide them with a clear sense of freedom from – danger, injury or damage.

Ride/comfort: Highway features and characteristics, such as ride quality, proper signing, or lack of obstructions, that provide a state of ease and quiet enjoyment for highway users.

Stewardship: Actions taken to help a highway element obtain its full potential service life.

Aesthetics: The display of natural or fabricated beauty items, such as landscaping located along a highway corridor. Also, the absence of things like litter, that detract from the sightlines of the road.

### C. Compass Feature Thresholds and Grade Ranges

Element	Feature	Threshold	Ranges for System Grades <i>Grade determined by percent backlogged</i> shown: top of range				
			A	B	C	D	F
Shoulders	Hazardous debris	Any items large enough to cause a safety hazard (by mile)	2%	5%	9%	15%	>15%
	Cracking on paved shoulder	200 linear feet or more of unsealed cracks > ¼ inch (by mile)	6%	15%	29%	50%	>50%
	Drop-off/build-up on paved shoulder	200 linear feet or more with drop-off or build-up > 1.5 inches (by mile)	2%	5%	9%	15%	>15%
	Potholes/raveling on paved shoulder	Any potholes OR raveling > 1 square foot by 1 inch deep (by mile)	7%	18%	35%	60%	>60%
	Cross-slope on unpaved shoulder	200 linear feet or more of cross-slope at least 2x planned slope with the maximum cross slope of 8% (by mile)	4%	9%	18%	30%	>30%
	Drop-off/build-up on unpaved shoulder	200 linear feet or more with drop-off or build-up > 1.5 inches (by mile)	2%	5%	9%	15%	>15%
	Erosion on unpaved shoulder	200 linear feet or more with erosion >2 inches deep (by mile)	6%	15%	29%	50%	>50%
Drainage	Culverts	Culverts that are >25% obstructed OR where a sharp object - e.g., a shovel-can be pushed through the bottom of the pipe OR pipe is collapsed or separated (by culvert)	4%	9%	18%	30%	>30%
	Curb & gutter	Curb & gutter with severe structural distress OR >1 inch structural misalignment OR >1 inch of debris build-up in the curb line (by linear feet of curb & gutter)	6%	15%	29%	50%	>50%
	Ditches	Ditch with greater than minimal erosion of ditch line OR obstructions to flow of water requiring action (by linear feet of ditch)	6%	15%	29%	50%	>50%
	Flumes	Not functioning as intended	6%	15%	29%	50%	>50%

Element	Feature	Threshold	Ranges for System Grades <i>Grade determined by percent backlogged</i> shown: top of range				
			A	B	C	D	F
		OR deteriorated to the point that they are causing erosion (by flume)					
	Storm sewer system	Inlets, catch basins, and outlet pipes with $\geq 50\%$ capacity obstructed OR $< 80\%$ structurally sound OR $> 1$ inch vertical displacement or heaving OR not functioning as intended (by inlet, catch basin & outlet pipes)	4%	9%	18%	30%	$> 30\%$
	Under-drains/edge-drains	Under- and edge-drains with outlets, endwalls or end protection closed or crushed OR water flow or end protection is obstructed (by drain)	6%	15%	29%	50%	$> 50\%$
Roadsides	Fences	Fence missing OR not functioning as intended (by LF of fence)	4%	9%	18%	30%	$> 30\%$
	Litter	Any pieces of litter on shoulders and roadside visible at posted speed, but not causing a safety threat. (by mile)	10%	25%	47%	80%	$> 80\%$
	Mowing	Any roadside has mowed grass that is too short, too wide or is mowed in a no-mow zone (by mile)	10%	25%	47%	80%	$> 80\%$
	Mowing for vision	Any instances in which grass is too high or blocks a vision triangle (by mile)	4%	9%	18%	30%	$> 30\%$
	Woody vegetation control	Any instances in which a tree is present in the clear zone OR trees and/or branches overhang the roadway or shoulder creating a clearance problem (by mile)	4%	9%	18%	30%	$> 30\%$
	Woody vegetation control for vision	Any instances in which woody vegetation blocks a vision triangle (by mile)	4%	9%	18%	30%	$> 30\%$
Traffic control & safety devices (selected)	Centerline markings	Line with $> 20\%$ paint missing (by mile)	2%	5%	9%	15%	$> 15\%$
	Edgeline markings	Line with $> 20\%$ paint missing (by mile)	2%	5%	9%	15%	$> 15\%$
	Delineators	Missing OR not visible at	4%	9%	18%	30%	$> 30\%$



Element	Feature	Threshold	Ranges for System Grades				
			Grade determined by percent backlogged shown: top of range				
			A	B	C	D	F
		posted speed OR damaged (by delineator)					
	Detour/object marker/recreation/guide signs (emergency repair)	Missing OR not visible at posted speed (by sign)	7%	18%	35%	60%	>60%
	Detour/object marker/recreation/guide signs (routine)	Beyond recommended service life (by sign)	7%	18%	35%	60%	>60%
	Protective barriers	Not functioning as intended (linear feet of barrier)	2%	5%	9%	15%	>15%
	Regulatory/warning signs (emergency repair)	Missing OR not visible at posted speed (by sign)	2%	5%	9%	15%	>15%
	Regulatory/warning signs (routine)	Beyond recommended service life (by sign)	4%	9%	18%	30%	>30%
	Special pavement markings	Missing OR not functioning as intended (by marking)	4%	9%	18%	30%	>30%

## **D. 2014 Target Service Levels Memorandum**

### **WisDOT Highway Maintenance 2014 Target Service Levels**

*Issued by Dave Vieth, Director, WisDOT Bureau of Highway Maintenance*

*September 17, 2013*

Attached are the 2014 target service levels for highway maintenance and operations. Highway maintenance managers set these targets to provide guidance to central office and regional highway maintenance staff in prioritizing activities and expending resources. The 2014 targets are critical for structuring the 2014 Routine Maintenance Agreements (RMA). **The targets are consistent with the 2014 RMA guidance that Tom Goodwyn sent to regions on August 20th.**

Targets are the conditions expected on state highways at the end of the summer maintenance season. They were selected by highway maintenance managers in the regions and BHM to set priorities within the budget and to increase consistency across region and county lines. The condition measure used is the percent of inventory with backlogged maintenance work. A measure greater than 0% backlogged reflects work left undone at the end of the summer season. Under full funding of maintenance needs, we would expect to see features at or close to 0%. The following chart provides historical service levels statewide and by region for 2012. Please remember targets have not yet been set for a portion of highway maintenance expenditures including winter operations, certain traffic control devices, and electrical operations.

Targets do not reflect an optimal maintenance condition for the highways, but instead reflect a continued commitment to fully fund winter operations, other organizational priorities, existing highway conditions, and most importantly, dollars available. Given constrained resources, these organizational priorities include:

- ❑ Focusing our resources on keeping the system safe and operating from day to day. Highway maintenance priorities will:
  - Decrease drop-off on unpaved shoulders.
  - Decrease the amount of hazardous debris on shoulders.
  - Repair damaged safety appurtenances and signs.
  - Repair damaged regulatory and warning signs, and continue to routinely replace old regulatory and warning signs.
- ❑ Expending far fewer resources as to direct more funding to higher priorities which emphasize asset preservation.
  - Mowing is limited to one shoulder cut per season. The exception is for spot locations where vision is a safety issue for that specific area.
  - No maintenance of lane-line raised pavement markers and other wet reflective markings. Special pavement markings will only be addressed for the most critical safety needs. Some edgeline markings will be deferred
  - Litter control is limited to once in the spring and Adopt-A-Highway efforts continue to be encouraged.
- ❑ Leveraging improvement funding and better coordinating improvement work to decrease maintenance workload and funding demands.
  - Now and going forward, maintenance supervisors and engineers will put greater emphasis on working with the improvement program to reduce the amount of drop-off/build-up on unpaved shoulders, decrease pavement rutting, reduce cracking on paved shoulders, and improve the condition of culverts.

Thank you to the Compass program for coordinating this effort and preparing this report.

## E.2014 Highway Maintenance Targets

Contribution Category and Element	Feature	2009 Target Percent Backlogged and Feature Grade - Statewide	2010 Target Percent Backlogged and Feature Grade - Statewide	2011 Target Percent Backlogged and Feature Grade - Statewide	2012 Target Percent Backlogged and Feature Grade - Statewide	2013 Target Percent Backlogged and Feature Grade - Statewide	2014 Target Percent Backlogged and Feature Grade - Statewide
<b>Critical Safety:</b>							
Traffic and Safety	Reg./Warning Signs - Emergency Repair	0=A	0=A	0=A	0=A	0=A	0=A
Shoulders	Hazardous Debris	6=C	6=C	6=C	6=C	5=B	5=B
Traffic and Safety	Protective Barriers	3=B	3=B	3=B	3=B	3=B	3=B
Traffic and Safety	Centerline Markings	5=B	5=B	5=B	5=B	5=B	5=B
Traffic and Safety	Edgeline Markings	8=C	8=C	8=C	8=C	8=C	8=C
Shoulders (unpaved)	Drop-off/Build-up	20=F	35=F	30=F	30=F	30=F	30=F
Shoulders (paved)	Drop-off/Build-up	NA	NA	4=B	4=B	4=B	4=B
<b>Safety/Mobility:</b>							
Roadside	Woody Veg. Control for Vision	3=A	3=A	2=A	2=A	2=A	2=A
Roadside	Mowing for Vision	5=B	5=B	5=B	5=B	5=B	5=B
Traffic and Safety	Special Pavement Markings	25=D	23=D	23=D	23=D	10=C	10=C
Roadside	Woody Vegetation	5=B	5=B	5=B	5=B	5=B	5=B
Drainage	Culverts	20=D	30=D	30=D	30=D	30=D	30=D
Drainage	Storm Sewer System	10=C	15=C	15=C	15=C	15=C	15=C
Shoulders (unpaved)	Cross-Slope	20=D	20=D	30=D	20=D	20=D	20=D
Traffic and Safety	Delineators	25=D	25=D	25=D	25=D	25=D	25=D
Traffic and Safety	Reg./Warning Signs -Routine Replacement	25=D	25=D	25=D	25=D	15=C	15=C
Roadside	Fences	14=C	14=C	14=C	14=C	14=C	14=C
<b>Stewardship:</b>							
Drainage	Ditches	5=A	5=A	5=A	5=A	5=A	5=A
Drainage	Curb & Gutter	10=B	10=B	10=B	10=B	10=B	10=B
Drainage	Flumes	30=D	35=D	35=D	35=D	35=D	35=D
Shoulders (paved)	Cracking	60=F	70=F	70=F	60=F	60=F	60=F
Shoulders (unpaved)	Erosion	5=A	5=A	5=A	5=A	5=A	5=A
Drainage	Under-drains/Edge-drains	25=C	30=D	30=D	30=D	30=D	30=D
<b>Ride/Comfort:</b>							
Shoulders (paved)	Potholes/Raveling	10=B	10=B	10=B	10=B	10=B	10=B
Traffic and Safety	Other Signs - Emergency Repair	1=A	1=A	1=A	1=A	1=A	1=A
Traffic and Safety	Other Signs - Routine Replacement	70=F	59=D	59=D	59=D	39=D	39=D
<b>Aesthetics:</b>							
Roadside	Mowing	40=C	40=C	40=C	40=C	40=C	40=C
Roadside	Litter	75=D	81=F	81=F	81=F	63=D	63=D

## F. 2014 Compass Rating Sheet



### 2014 Compass Rating Sheet

Wisconsin Department of Transportation

«MySegment», «MyRoute», «RegionAbbr», «MyCounty», «MyRegion», «DS»

Directions: «PrimaryDir»

«PrimaryPost»

Alternate Directions: «AltDir»

«AltPost»

Date Survey Taken:

Start Time:

Stop Time:

Reviewed by:

If a segment is discarded for one of the reasons below, please check the appropriate box and add the next highest numbered "spare" segment for a similar roadway (divided or undivided) to your list of segments to be rated. Please enter the reject reason in the database.

☐ A piece or the entire segment falls on a bridge.
 ☐ A piece or the entire segment is currently under construction.

☐ We believe it would be unsafe to rate this segment.
 ☐ We cannot locate this segment.

☐ An organization other than WisDOT is responsible for the maintenance of ANY of the four elements within this section.

Shoulders	Standard	Value	Comments
<b>Hazardous Debris</b> (S-1)	Number of items large enough to cause a safety hazard.....		
<b>Paved Shoulder</b>	<input type="checkbox"/> None (If none, skip to Unpaved Shoulder)		
	Paved shoulder width (typical width in whole feet).....		
	Paved shoulder length (total linear feet).....		
<b>Drop off/build-up</b> (S-2)	Linear feet of <u>paved-to-paved</u> drop-off/build-up greater than 1.5".....		
<b>Cracking</b> (S-3)	Linear feet of unsealed cracks greater than 1/4" (up to 150' on undivided highways or 300' on divided highways).....		
<b>Potholes/Raveling</b> (S-4)	Total sq. ft. of BOTH potholes AND raveling greater than 1 ft <sup>2</sup> x 1" deep.....		
<b>Unpaved Shoulder</b>	<input type="checkbox"/> None (If none, skip to Drainage)		
	Unpaved shoulder width (typical width in whole feet).....		
	Unpaved shoulder length (total linear feet).....		
<b>Drop off/build-up</b> (S-5)	Linear feet of <u>paved-to-unpaved</u> drop-off/build-up greater than 1.5".....		
<b>Cross Slope</b> (S-6)	Linear feet with unpaved cross slope greater than twice the planned angle.		
<b>Erosion</b> (S-7)	Square feet with ruts deeper than 2 inches.....		

Drainage		Value & Repair/Clean	Comments
<b>Ditches</b> (D-1)	<input type="checkbox"/> None Total linear feet of ditch..... Linear ft. with more than minimal erosion of ditch line OR obstructions to the flow of water requiring action.....	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
<b>Culverts</b> (D-2)	<input type="checkbox"/> None Total number of culverts..... Number with more than 25% obstructed OR where a sharp object (a shovel) can be pushed thru bottom of pipe OR pipe is collapsing..... Size and type of deficient culvert (select check box in "Comments" column).....	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	Deficient Culvert: Size: _____ Type: <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Lined <input type="checkbox"/> Unknown
<b>Under/Edge Drain</b> (D-3)	<input type="checkbox"/> None Total number of drains..... Number with outlets, endwalls or end protection closed or crushed OR where water flow or end protection is obstructed.....	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
<b>Flumes</b> (D-4)	<input type="checkbox"/> None Total number of flumes..... Number not functioning as intended OR deteriorated to the point that they are causing erosion.....	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	

<b>Curb &amp; Gutter</b> (D-5)	<input type="checkbox"/> None	Total linear feet of curb and gutter ..... Linear feet with severe structural distress OR more than 1" structural misalignment OR more than 1" of debris build up in the curb line .....	<input type="checkbox"/> Repair <input type="checkbox"/> Clean
<b>Storm Sewer</b> (D-6)	<input type="checkbox"/> None	Total number of inlets, catch basins and outlet pipes ..... Number more than 50% capacity obstructed OR less than 80% structurally sound OR more than 1" vertical displacement OR not functioning as intended.....	<input type="checkbox"/> Repair <input type="checkbox"/> Clean

Roadsides		Value	Comments
<b>Litter</b> (R-1)	Number of pieces (up to 15) of litter and non-natural encroachments on shoulders and roadside visible at posted speed, but not causing a safety threat .....		
<b>Mowing</b> (R-2)	Mowing meets standard ..... If NO, grass is mowed: <input type="checkbox"/> too wide <input type="checkbox"/> too short <input type="checkbox"/> too tall <input type="checkbox"/> in a no mow zone If NO, why: <input type="checkbox"/> safety/equipment <input type="checkbox"/> mowed by property owner <input type="checkbox"/> woody vegetation control <input type="checkbox"/> maintenance decision .....	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>Mowing Vision</b> (R-2)	<input type="checkbox"/> None Grass blocks a vision triangle or sightlines .....	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>Woody Vegetation</b> (R-3)	Number of instances in which a tree > 4" in diameter is present in the clear zone OR trees and/or branches overhang the roadway or shoulder creating a clearance problem.....		
<b>Woody Vegetation Vision</b> (R-3)	Woody vegetation causes a vision problem .....	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>Fences</b> (R-4)	<input type="checkbox"/> None Total linear feet of right-of-way fence ..... Linear feet missing OR not functioning as intended .....		

Traffic Control and Safety		Value	Comments
<b>Centerline Markings</b> (T-1)	<input type="checkbox"/> None Over total segment, more than 20% centerline of material is missing .....	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>Edgeline Markings</b> (T-1)	<input type="checkbox"/> None Over total segment, more than 20% edgeline of material is missing .....	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>Special Pavement Markings</b> (T-2)	<input type="checkbox"/> None Total number of special pavement markings ..... Number missing OR not functioning as intended .....		
<b>Regulatory/Warning Signs</b> (T-3)	<input type="checkbox"/> None Total number of regulatory/warning signs ..... Number missing OR damaged .....		
<b>Other Signs</b> (T-4)	<input type="checkbox"/> None Total number of other signs ..... Number missing OR damaged .....		
<b>Delineators</b> (T-5)	<input type="checkbox"/> None Total number of delineators ..... Number missing OR damaged .....		
<b>Protective Barriers</b> (T-6)	<input type="checkbox"/> None Total linear feet of beam guard, concrete barrier, and cable guard ..... Linear feet of protective barriers not functioning as intended and type(s) of deficient protective barrier .....	<input type="checkbox"/> Beam Guard <input type="checkbox"/> Damaged Terminal <input type="checkbox"/> Concrete Barrier <input type="checkbox"/> Cable Guard	

Rating the feature must be completed in vehicle driving at posted speed.

1/10-mile	X2	X3	X4
528 feet	1,056 feet	1,584 feet	2,112 feet

Ratings should be entered into the database **by October 15, 2014**. Hardcopy Rating Sheets should be sent to Scott Bush at 4802 Sheboygan Avenue, Room 501. Questions? Please call Scott at 608-266-8666 or email to [Scott.Bush@dot.wi.gov](mailto:Scott.Bush@dot.wi.gov)

## G. County Data

### Counties 2014: Shoulders and Drainage

Region	County	Condition % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
NC	ADAMS	10%	60%	0%	0%	10%	20%	0%	0%	0%	0%	0%	0%	0%
		10	10	10	10	10	10	10	4	0	10	0	0	0
	FLORENCE	0%	80%	0%	0%	43%	29%	0%	0%	0%	0%	0%	0%	0%
		7	5	5	5	7	7	7	2	0	7	0	0	0
	FOREST	0%	73%	0%	0%	40%	7%	0%	0%	0%	0%	0%	0%	0%
		16	11	11	11	15	15	15	6	1	13	0	1	0
	GREEN LAKE	0%	43%	0%	0%	0%	57%	0%	0%	0%	0%	0%	0%	0%
		7	7	7	7	7	7	7	3	3	7	2	0	0
	IRON	0%	43%	0%	0%	17%	8%	8%	40%	0%	2%	0%	0%	0%
		13	7	7	7	12	12	12	5	0	13	0	0	1
	LANGLADE	0%	75%	0%	8%	13%	0%	0%	0%	4%	1%	0%	0%	0%
		15	12	12	12	15	15	15	2	2	14	0	0	0
	LINCOLN	19%	93%	0%	0%	69%	31%	0%	29%	0%	1%	0%	0%	83%

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
		16	14	14	14	16	16	16	5	0	16	0	0	3
	MARATHON	0%	43%	0%	4%	17%	8%	0%	14%	0%	0%	20%	0%	0%
		28	23	23	23	24	24	24	4	5	25	2	5	3
	MARQUETTE	0%	67%	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%
		9	9	9	9	9	9	9	5	0	8	0	0	1
	MENOMINEE	0%	33%	0%	0%	25%	50%	0%	50%	9%	2%	0%	0%	0%
		4	3	3	3	4	4	4	2	1	4	0	1	0
	ONEIDA	6%	56%	0%	0%	6%	38%	6%	0%	27%	1%	0%	50%	0%
		17	16	16	16	16	16	16	6	2	15	0	1	0
	PORTAGE	0%	69%	8%	0%	14%	50%	0%	43%	0%	0%	0%	0%	0%
		16	13	13	13	14	14	14	7	4	14	1	4	1
	PRICE	0%	45%	0%	0%	56%	13%	13%	0%	2%	1%	0%	33%	0%
		17	11	11	11	16	16	16	7	1	11	1	1	1
	SHAWANO	0%	73%	13%	0%	11%	72%	0%	0%	0%	0%	100%	0%	0%
		18	15	15	15	18	18	18	7	1	18	1	1	4
	VILAS	0%	29%	0%	0%	23%	8%	0%	0%	0%	1%	0%	0%	0%
		15	14	14	14	13	13	13	0	2	13	1	2	0

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
	WAUPACA	0%	94%	0%	6%	47%	42%	0%	0%	0%	0%	100%	0%	0%
		20	17	17	17	19	19	19	6	4	18	1	2	1
	WAUSHARA	7%	58%	0%	0%	0%	10%	0%	0%	0%	0%	0%	100%	0%
		14	12	12	12	10	10	10	4	2	13	1	1	3
	WOOD	0%	53%	6%	0%	0%	56%	0%	0%	0%	1%	0%	0%	11%
		18	17	17	17	16	16	16	4	2	15	1	1	2
NE	BROWN	0%	100%	0%	8%	0%	54%	0%	44%	1%	0%	100%	17%	50%
		16	13	13	13	13	13	13	8	6	14	1	4	3
	CALUMET	0%	100%	0%	0%	22%	78%	0%	0%	29%	0%	0%	0%	0%
		9	9	9	9	9	9	9	2	1	9	0	1	0
	DOOR	0%	100%	9%	0%	45%	55%	0%	67%	1%	0%	100%	0%	0%
		11	11	11	11	11	11	11	2	2	11	1	1	0
	FOND DU LAC	35%	70%	0%	0%	45%	40%	0%	0%	0%	0%	0%	0%	0%
		20	20	20	20	20	20	20	6	3	19	2	4	7
	KEWAUNEE	0%	100%	0%	0%	17%	17%	0%	50%	0%	0%	100%	0%	0%
		6	6	6	6	6	6	6	4	3	6	1	0	0
	MANITOWOC	14%	64%	0%	14%	17%	42%	0%	0%	2%	2%	100%	100%	0%



Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
		14	14	14	14	12	12	12	2	2	14	1	2	0
	MARINETTE	25%	63%	6%	0%	19%	19%	0%	33%	27%	1%	25%	0%	0%
		16	16	16	16	16	16	16	3	2	16	1	2	0
	OCONTO	6%	75%	13%	0%	44%	19%	0%	0%	0%	0%	0%	0%	0%
		16	16	16	16	16	16	16	3	3	15	2	3	6
	OUTAGAMIE	11%	67%	0%	0%	22%	78%	0%	40%	5%	1%	100%	11%	83%
		18	15	15	15	18	18	18	10	7	18	2	3	2
	SHEBOYGAN	12%	82%	0%	0%	35%	59%	6%	17%	1%	1%	0%	0%	0%
		17	17	17	17	17	17	17	4	4	17	2	5	0
NW	WINNEBAGO	0%	87%	33%	0%	0%	69%	0%	60%	0%	0%	100%	17%	4%
		16	15	15	15	16	16	16	3	1	16	1	3	9
	ASHLAND	8%	73%	0%	9%	67%	83%	0%	75%	0%	29%	0%	0%	0%
		12	11	11	11	12	12	12	4	0	12	0	0	0
	BARRON	0%	53%	0%	0%	0%	20%	0%	0%	2%	0%	0%	0%	0%
		15	15	15	15	15	15	15	6	4	15	1	0	0
	BAYFIELD	6%	54%	0%	8%	24%	71%	0%	67%	100%	10%	100%	0%	0%
		17	13	13	13	17	17	17	3	1	16	1	0	1

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
	BUFFALO	0%	83%	0%	58%	13%	20%	0%	13%	24%	8%	0%	0%	0%
		16	12	12	12	15	15	15	6	1	12	0	0	2
	BURNETT	0%	75%	0%	0%	0%	55%	0%	25%	0%	0%	0%	0%	0%
		11	8	8	8	11	11	11	3	0	11	0	0	0
	CHIPPEWA	0%	86%	14%	5%	5%	32%	5%	0%	0%	0%	0%	0%	0%
		22	22	22	22	22	22	22	13	1	22	1	0	5
	CLARK	0%	88%	18%	18%	65%	76%	0%	57%	53%	7%	100%	0%	100%
		17	17	17	17	17	17	17	5	4	17	2	1	6
	DOUGLAS	0%	75%	0%	0%	19%	31%	6%	40%	12%	0%	100%	29%	0%
		16	16	16	16	16	16	16	7	3	14	3	4	0
	DUNN	0%	47%	0%	5%	0%	43%	5%	10%	2%	0%	0%	0%	0%
		21	19	19	19	21	21	21	8	1	21	0	0	0
	EAU CLAIRE	6%	75%	0%	13%	0%	19%	0%	0%	0%	0%	0%	0%	0%
		16	16	16	16	16	16	16	4	2	16	0	1	2
	JACKSON	0%	75%	10%	15%	15%	55%	20%	63%	83%	0%	50%	0%	100%
		20	20	20	20	20	20	20	8	1	20	2	0	2
	PEPIN	0%	100%	0%	40%	50%	50%	0%	20%	0%	0%	0%	0%	0%

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
		5	5	5	5	4	4	4	3	0	4	0	0	0
	PIERCE	11%	81%	0%	0%	6%	39%	0%	14%	0%	1%	0%	0%	0%
		18	16	16	16	18	18	18	6	1	18	0	0	0
	POLK	0%	43%	0%	0%	33%	13%	0%	0%	0%	0%	0%	0%	0%
		17	14	14	14	15	15	15	3	4	14	2	2	0
	RUSK	0%	18%	0%	0%	0%	9%	9%	0%	0%	0%	0%	0%	0%
		11	11	11	11	11	11	11	1	0	10	0	0	0
	SAWYER	6%	31%	0%	6%	24%	29%	0%	0%	33%	0%	0%	0%	0%
		17	16	16	16	17	17	17	4	1	15	0	0	0
	ST. CROIX	5%	62%	0%	0%	0%	24%	0%	0%	90%	0%	0%	0%	0%
		22	21	21	21	21	21	21	9	2	22	0	1	0
	TAYLOR	0%	50%	0%	0%	0%	58%	8%	50%	85%	2%	0%	100%	0%
		12	12	12	12	12	12	12	2	2	12	0	1	0
	TREMPEALEAU	5%	74%	0%	26%	15%	25%	0%	33%	11%	3%	0%	0%	0%
		20	19	19	19	20	20	20	7	2	18	0	1	0
	WASHBURN	0%	79%	0%	7%	0%	79%	0%	75%	3%	0%	50%	0%	0%
		15	14	14	14	14	14	14	4	3	14	1	0	1

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
SE	KENOSHA	0%	44%	11%	22%	25%	25%	0%	0%	0%	9%	63%	0%	100%
		11	9	9	9	8	8	8	1	7	8	4	4	1
	MILWAUKEE	19%	58%	0%	8%	0%	100%	0%	50%	0%	24%	33%	18%	0%
		16	12	12	12	2	2	2	2	10	11	2	14	0
	OZAUKEE	13%	63%	38%	13%	57%	86%	0%	0%	0%	1%	0%	0%	0%
		8	8	8	8	7	7	7	1	1	8	0	2	0
	RACINE	0%	92%	0%	8%	58%	67%	17%	33%	9%	6%	75%	26%	25%
		15	12	12	12	12	12	12	3	10	13	3	7	3
	WALWORTH	14%	71%	5%	33%	55%	70%	0%	11%	9%	1%	13%	4%	11%
		21	21	21	21	20	20	20	6	8	19	4	6	7
	WASHINGTON	0%	71%	0%	12%	65%	41%	12%	25%	1%	3%	17%	21%	0%
		18	17	17	17	17	17	17	4	7	16	4	5	2
	WAUKESHA	13%	65%	30%	0%	6%	0%	0%	0%	0%	0%	25%	12%	0%
		24	20	20	20	16	16	16	2	11	15	2	9	0
SW	COLUMBIA	4%	93%	4%	37%	82%	71%	11%	20%	8%	2%	0%	0%	0%
		28	27	27	27	28	28	28	5	3	27	1	1	1
	CRAWFORD	40%	53%	0%	13%	67%	83%	0%	13%	3%	3%	67%	10%	0%

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
		20	15	15	15	6	6	6	7	8	19	2	3	0
	DANE	27%	67%	6%	17%	8%	47%	0%	25%	10%	1%	100%	73%	76%
		41	36	36	36	36	36	36	4	14	35	3	12	5
	DODGE	4%	84%	0%	20%	75%	58%	0%	0%	0%	0%	0%	0%	0%
		25	25	25	25	24	24	24	8	3	21	2	3	0
	GRANT	32%	78%	4%	22%	17%	75%	0%	0%	0%	2%	50%	14%	0%
		28	27	27	27	12	12	12	10	3	28	4	3	1
	GREEN	0%	36%	0%	9%	38%	38%	8%	25%	5%	0%	83%	0%	0%
		13	11	11	11	13	13	13	4	3	13	3	2	0
	IOWA	0%	87%	0%	0%	50%	75%	6%	0%	12%	0%	33%	0%	0%
		18	15	15	15	16	16	16	2	7	17	2	2	0
	JEFFERSON	6%	78%	6%	6%	29%	29%	24%	25%	1%	0%	0%	0%	0%
		18	18	18	18	17	17	17	7	3	18	1	6	1
	JUNEAU	0%	61%	0%	0%	14%	21%	0%	22%	6%	0%	0%	0%	0%
		20	18	18	18	14	14	14	8	3	15	1	2	3
	LA CROSSE	7%	63%	0%	13%	43%	50%	0%	75%	15%	0%	0%	20%	0%
		15	8	8	8	14	14	14	6	3	15	1	1	0

Region	County	<b>Condition</b> % backlogged # of observations												
		Shoulders							Drainage					
		Hazardous Debris	Cracking (paved)	Drop-off/Build-up (paved)	Potholes/Raveling (paved)	Cross-Slope (unpaved)	Drop-off/Build-up (unpaved)	Erosion (unpaved)	Culverts	Curb & Gutter	Ditches	Flumes	Storm Sewer System	Under-drains/Edge-drains
	LAFAYETTE	0%	92%	0%	0%	31%	46%	8%	100%	63%	0%	0%	0%	0%
		14	12	12	12	13	13	13	2	2	14	0	0	0
	MONROE	0%	28%	4%	0%	0%	17%	0%	22%	0%	0%	0%	50%	0%
		25	25	25	25	12	12	12	6	5	20	4	3	0
	RICHLAND	13%	69%	0%	15%	15%	31%	0%	0%	3%	1%	50%	17%	0%
		16	13	13	13	13	13	13	6	2	15	1	1	0
	ROCK	25%	78%	0%	0%	63%	29%	0%	8%	0%	0%	0%	0%	0%
		24	18	18	18	24	24	24	9	3	24	0	2	3
	SAUK	26%	75%	0%	5%	19%	43%	0%	11%	1%	0%	100%	0%	0%
		23	20	20	20	21	21	21	8	2	20	1	2	0
	VERNON	0%	78%	0%	17%	47%	53%	11%	31%	50%	1%	0%	0%	0%
		23	18	18	18	19	19	19	13	4	22	1	1	0

## Counties 2014: Roadsides and Traffic

Region	County	<b>Condition</b> % backlogged # of observations												
		Roadsides						Traffic						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
NC	ADAMS	0%	40%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	10	10	2	10	10	10	0	10	2	0	2	0
	FLORENCE	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
		0	7	7	5	7	7	7	1	7	1	1	5	0
	FOREST	0%	13%	6%	0%	6%	0%	0%	0%	13%	0%	0%	0%	0%
		0	16	16	2	16	16	16	0	15	4	0	7	0
	GREEN LAKE	0%	0%	86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	7	7	1	7	7	7	0	7	3	0	3	1
	IRON	0%	85%	0%	0%	0%	0%	15%	0%	23%	0%	0%	0%	0%
		0	13	13	13	13	13	13	0	13	4	0	4	0
	LANGLADE	0%	27%	13%	0%	0%	0%	20%	0%	27%	0%	0%	0%	0%
		0	15	15	0	15	15	15	0	15	2	0	4	1
	LINCOLN	0%	69%	19%	0%	0%	6%	0%	0%	6%	0%	0%	0%	0%
		2	16	16	5	16	16	16	4	16	2	0	7	2
	MARATHON	2%	57%	64%	0%	0%	0%	14%	7%	0%	0%	0%	0%	7%
		3	28	28	19	28	28	28	4	28	11	4	13	5

Region	County	<b>Condition</b> % backlogged # of observations												
		<b>Roadsides</b>						<b>Traffic</b>						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	MARQUETTE	0%	44%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		3	9	9	0	9	9	9	3	9	3	1	3	0
	MENOMINEE	0%	0%	25%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%
		0	4	4	2	4	4	4	0	4	2	0	3	0
	ONEIDA	0%	29%	0%	0%	0%	6%	29%	0%	0%	0%	0%	4%	0%
		0	17	17	13	17	17	17	1	16	6	1	10	1
	PORTAGE	0%	69%	25%	0%	6%	0%	0%	32%	0%	9%	0%	0%	0%
		5	16	16	1	16	16	16	7	14	5	0	4	2
	PRICE	0%	59%	6%	0%	6%	0%	12%	0%	19%	0%	0%	0%	0%
		0	17	17	5	17	17	17	2	16	3	0	7	1
	SHAWANO	0%	39%	56%	0%	0%	0%	11%	6%	11%	0%	0%	0%	0%
		0	18	18	1	18	18	18	5	18	6	0	9	2
	VILAS	0%	53%	0%	0%	0%	0%	27%	0%	13%	0%	0%	14%	0%
		0	15	15	6	15	15	15	0	15	3	0	5	0
	WAUPACA	0%	0%	55%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
		0	20	20	2	20	20	20	3	19	11	2	8	1
	WAUSHARA	0%	7%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		3	14	14	3	14	14	14	6	13	6	2	5	0



Region	County	<b>Condition</b> % backlogged # of observations												
		Roadsides						Traffic						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	WOOD	0%	22%	44%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%
		2	18	18	1	18	18	18	2	18	7	0	9	2
NE	BROWN	0%	81%	44%	0%	6%	6%	0%	18%	0%	0%	47%	0%	0%
		8	16	16	5	16	16	16	9	15	3	3	6	3
	CALUMET	0%	89%	56%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%
		0	9	9	1	9	9	9	0	9	2	0	3	1
	DOOR	0%	36%	82%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		1	11	11	2	11	11	11	1	11	3	0	8	1
	FOND DU LAC	0%	90%	45%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%
		7	20	20	3	20	20	20	6	20	7	3	8	3
	KEWAUNEE	0%	33%	33%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
		1	6	6	3	6	6	6	1	6	4	1	6	0
	MANITOWOC	0%	50%	43%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%
		2	14	14	4	14	14	14	3	14	4	1	6	1
	MARINETTE	0%	88%	38%	0%	0%	0%	31%	8%	6%	0%	0%	0%	0%
		2	16	16	7	16	16	16	3	16	5	2	8	1
	OCONTO	0%	88%	31%	33%	0%	0%	0%	4%	0%	0%	0%	0%	0%
		6	16	16	6	16	16	16	8	16	4	0	5	4

Region	County	<b>Condition</b> % backlogged # of observations												
		<b>Roadsides</b>						<b>Traffic</b>						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	OUTAGAMIE	0%	61%	33%	0%	0%	0%	33%	12%	17%	4%	0%	3%	0%
		3	18	18	16	18	18	18	5	18	8	6	13	5
	SHEBOYGAN	0%	82%	41%	0%	0%	0%	0%	0%	6%	25%	0%	0%	0%
		2	17	17	4	17	17	17	5	17	6	2	8	3
	WINNEBAGO	0%	75%	19%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%
		9	16	16	0	16	16	16	9	16	2	0	4	3
NW	ASHLAND	0%	58%	25%	0%	0%	0%	25%	0%	17%	0%	0%	0%	0%
		0	12	12	1	12	12	12	0	12	1	1	5	0
	BARRON	0%	80%	40%	0%	0%	0%	7%	13%	0%	0%	0%	0%	0%
		4	15	15	3	15	15	15	3	15	3	0	4	2
	BAYFIELD	0%	53%	24%	0%	12%	0%	41%	0%	0%	0%	0%	0%	0%
		0	17	17	5	17	17	17	1	17	4	1	11	0
	BUFFALO	0%	25%	31%	0%	0%	0%	13%	44%	6%	0%	7%	0%	0%
		0	16	16	5	16	16	16	6	16	4	5	10	0
	BURNETT	0%	55%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	11	11	1	11	11	11	0	11	4	0	4	2
	CHIPPEWA	0%	0%	5%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
		5	22	22	6	22	22	22	11	22	9	6	9	0

Region	County	<b>Condition</b> % backlogged # of observations												
		Roadsides						Traffic						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	CLARK	0%	82%	0%	0%	0%	0%	0%	26%	0%	6%	51%	0%	0%
		0	17	17	17	17	17	17	9	17	8	3	11	3
	DOUGLAS	15%	81%	0%	33%	0%	0%	0%	15%	6%	0%	0%	0%	0%
		1	16	16	3	16	16	16	7	16	3	2	6	2
	DUNN	0%	52%	19%	0%	0%	0%	0%	23%	0%	21%	0%	4%	0%
		0	21	21	7	21	21	21	2	21	5	3	13	1
	EAU CLAIRE	0%	6%	6%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
		2	16	16	3	16	16	16	2	16	7	3	7	3
	JACKSON	22%	75%	0%	5%	0%	5%	0%	33%	0%	0%	7%	0%	0%
		6	20	20	20	20	20	20	8	20	6	3	10	0
	PEPIN	0%	20%	20%	0%	0%	0%	0%	40%	0%	67%	1%	0%	0%
		0	5	5	0	5	5	5	3	5	1	3	1	0
	PIERCE	0%	78%	33%	0%	6%	0%	0%	54%	0%	0%	1%	0%	0%
		0	18	18	4	18	18	18	4	18	4	4	10	0
	POLK	0%	53%	35%	0%	0%	0%	6%	0%	0%	0%	0%	0%	8%
		0	17	17	5	17	17	17	3	17	5	2	11	4
	RUSK	0%	45%	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	11	11	0	11	11	11	0	11	4	0	3	0

Region	County	<b>Condition</b> % backlogged # of observations												
		Roadsides						Traffic						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	SAWYER	0%	65%	24%	0%	6%	0%	6%	0%	0%	0%	4%	0%	0%
		0	17	17	6	17	17	17	0	17	4	2	7	0
	ST. CROIX	0%	59%	36%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%
		4	22	22	1	22	22	22	11	22	7	8	7	2
	TAYLOR	0%	83%	0%	0%	8%	0%	25%	0%	8%	19%	47%	27%	7%
		0	12	12	12	12	12	12	0	12	7	1	4	1
	TREMPEALEAU	0%	30%	50%	0%	0%	0%	0%	13%	5%	0%	2%	0%	0%
		1	20	20	4	20	20	20	4	20	6	4	11	1
SE	WASHBURN	0%	80%	13%	0%	0%	0%	7%	24%	0%	0%	0%	0%	0%
		4	15	15	6	15	15	15	5	14	4	0	6	1
	KENOSHA	0%	91%	91%	0%	18%	0%	0%	76%	9%	0%	2%	0%	6%
		0	11	11	5	11	11	11	2	11	4	1	7	6
	MILWAUKEE	0%	100%	44%	0%	13%	6%	6%	0%	13%	2%	0%	0%	6%
		4	16	16	9	16	16	16	2	15	14	7	13	14
	OZAUKEE	0%	75%	38%	0%	0%	0%	0%	45%	0%	0%	0%	0%	0%
		3	8	8	2	8	8	8	3	8	2	1	3	2
	RACINE	0%	67%	80%	0%	13%	13%	20%	0%	8%	0%	0%	0%	5%
		0	15	15	2	15	15	15	4	13	4	4	13	10

Region	County	<b>Condition</b> % backlogged # of observations												
		Roadsides						Traffic						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	WALWORTH	0%	90%	52%	0%	0%	0%	0%	23%	5%	2%	0%	3%	8%
		5	21	21	7	21	21	21	10	21	11	4	18	8
	WASHINGTON	0%	78%	39%	0%	0%	0%	0%	30%	0%	8%	1%	0%	0%
		5	18	18	6	18	18	18	8	18	5	6	10	5
	WAUKESHA	0%	54%	46%	0%	0%	0%	17%	20%	17%	0%	0%	3%	0%
		6	24	24	0	24	24	24	6	24	5	3	15	6
SW	COLUMBIA	0%	93%	64%	0%	0%	0%	11%	43%	36%	0%	0%	0%	25%
		4	28	28	4	28	28	28	6	28	9	5	10	3
	CRAWFORD	0%	35%	25%	0%	0%	0%	0%	39%	5%	0%	3%	7%	0%
		0	20	20	14	20	20	20	8	20	4	8	11	3
	DANE	0%	100%	37%	7%	2%	2%	5%	25%	13%	0%	0%	0%	3%
		13	41	41	15	41	41	40	8	39	23	10	13	12
	DODGE	0%	88%	52%	0%	0%	0%	4%	38%	20%	0%	0%	0%	31%
		2	25	25	2	25	25	25	2	25	7	1	13	7
	GRANT	0%	61%	25%	6%	7%	0%	4%	16%	4%	0%	8%	0%	0%
		3	28	28	17	28	28	28	11	28	8	7	6	2
	GREEN	0%	85%	31%	0%	0%	0%	15%	0%	46%	0%	0%	0%	0%
		2	13	13	6	13	13	13	1	13	4	1	9	3

Region	County	<b>Condition</b> % backlogged # of observations												
		Roadsides						Traffic						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	IOWA	0%	83%	44%	0%	0%	0%	6%	0%	28%	0%	100%	0%	0%
		1	18	18	8	18	18	18	2	18	3	1	11	3
	JEFFERSON	0%	61%	39%	0%	0%	0%	6%	21%	11%	0%	0%	6%	0%
		8	18	18	5	18	18	18	8	18	7	1	14	3
	JUNEAU	0%	50%	35%	0%	15%	0%	0%	0%	0%	6%	0%	0%	0%
		4	20	20	0	20	20	20	4	20	6	2	6	2
	LA CROSSE	0%	53%	13%	0%	0%	0%	20%	64%	13%	0%	12%	0%	0%
		3	15	15	15	15	15	15	6	15	1	6	7	1
	LAFAYETTE	0%	86%	50%	0%	0%	0%	43%	69%	86%	0%	10%	0%	100%
		1	14	14	3	14	14	14	4	14	2	3	7	1
	MONROE	0%	44%	28%	0%	0%	0%	4%	13%	0%	0%	0%	0%	50%
		5	25	25	0	25	25	25	8	25	6	4	10	2
	RICHLAND	0%	56%	44%	0%	6%	0%	31%	20%	50%	0%	0%	4%	33%
		0	16	16	9	16	16	16	3	16	2	3	8	1
	ROCK	0%	67%	42%	0%	4%	4%	8%	48%	38%	0%	8%	0%	0%
		7	24	24	2	24	24	24	6	24	6	2	13	3
	SAUK	0%	83%	43%	0%	0%	0%	4%	75%	9%	6%	0%	0%	31%
		0	23	23	2	23	23	23	1	23	11	3	4	1

Region	County	<b>Condition</b> % backlogged # of observations												
		<b>Roadsides</b>						<b>Traffic</b>						
		Fences	Litter	Mowing	Mowing for Vision	Woody Vegetation	Woody Veg. Control for Vision	Centerline Markings	Delineators	Edgeline Markings	Other Signs (emerg. repair)	Protective Barriers	Reg./Warning Signs (emerg.)	Special Pavement Markings
	VERNON	0%	78%	43%	0%	4%	9%	0%	39%	13%	7%	0%	0%	0%
		0	23	23	23	23	23	23	4	23	4	3	9	0

### Counties 2014: Sign Condition

Region	County	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
NC	ADAMS	1,052	3%	28	3.3	539	6%	35	7.4
	FLORENCE	483	0%	1	4.0	348	2%	8	3.0
	FOREST	1,281	0%	6	7.0	825	3%	21	2.8
	GREEN LAKE	867	9%	74	4.1	586	12%	68	10.2
	IRON	1,145	3%	29	3.8	580	7%	40	3.1
	LANGLADE	1,210	1%	9	3.8	676	5%	31	2.7
	LINCOLN	1,485	2%	37	3.4	951	14%	134	7.9
	MARATHON	4,353	4%	169	5.0	2,673	19%	507	8.0
	MARQUETTE	972	2%	24	2.9	587	23%	133	8.2
	MENOMINEE	696	15%	103	2.3	228	14%	33	3.2
	ONEIDA	2,058	3%	69	3.7	1,039	10%	100	3.2
	PORTAGE	2,303	3%	75	3.1	1,540	20%	313	7.5
	PRICE	1,044	1%	15	2.5	795	7%	55	2.9



Region	County	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	SHAWANO	2,013	14%	283	7.2	1,284	10%	125	7.1
	VILAS	1,593	2%	31	4.8	973	13%	126	3.2
	WAUPACA	3,155	2%	64	3.5	1,475	25%	369	6.4
	WAUSHARA	1,930	7%	134	3.2	935	24%	220	7.3
	WOOD	2,301	2%	52	3.8	1,230	12%	146	6.3
NE	BROWN	4,295	18%	767	6.2	2,621	31%	801	9.0
	CALUMET	1,445	4%	53	2.9	676	15%	103	8.4
	DOOR	1,975	10%	207	8.0	750	21%	157	10.3
	FOND DU LAC	2,698	9%	248	4.3	1,722	23%	393	6.5
	KEWAUNEE	684	5%	32	6.2	379	12%	47	8.7
	MANITOWOC	2,195	11%	236	6.5	1,548	43%	661	10.9
	MARINETTE	2,015	17%	340	8.9	1,094	27%	297	8.8
	OCONTO	2,318	17%	385	5.1	1,231	27%	336	6.8
	OUTAGAMIE	3,336	10%	343	6.9	1,993	20%	396	7.8
	SHEBOYGAN	3,315	4%	147	5.6	1,964	23%	459	9.9

Region	County	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	WINNEBAGO	2,905	10%	292	6.1	1,822	22%	399	7.6
NW	ASHLAND	1,307	11%	141	5.0	771	39%	301	7.6
	BARRON	1,912	9%	163	3.9	1,603	40%	640	9.1
	BAYFIELD	1,721	14%	239	3.7	1,058	54%	573	7.8
	BUFFALO	1,884	3%	52	4.7	939	24%	226	12.5
	BURNETT	1,185	10%	122	7.2	731	41%	302	9.8
	CHIPPEWA	2,466	6%	140	5.1	1,853	24%	450	8.3
	CLARK	1,653	8%	138	4.0	1,061	30%	321	7.3
	DOUGLAS	1,949	7%	142	6.5	1,369	38%	520	10.2
	DUNN	2,268	10%	218	4.7	1,748	39%	674	8.5
	EAU CLAIRE	2,658	6%	169	6.2	1,861	19%	356	7.7
	JACKSON	1,703	5%	82	4.5	1,215	20%	246	9.6
	PEPIN	582	8%	47	3.0	445	37%	163	6.3
	PIERCE	1,785	8%	150	4.0	1,277	29%	366	9.5
	POLK	2,268	10%	230	3.6	1,334	37%	498	8.8

Region	County	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	RUSK	1,024	3%	32	4.0	693	35%	244	6.9
	SAWYER	1,432	3%	41	4.1	934	33%	310	7.9
	ST. CROIX	3,189	9%	283	5.2	2,092	29%	603	7.2
	TAYLOR	1,110	3%	37	4.2	729	16%	114	7.7
	TREMPEALEAU	2,228	9%	197	3.7	1,489	43%	647	10.0
	WASHBURN	1,940	5%	99	5.9	1,170	49%	579	8.8
SE	KENOSHA	6,169	16%	984	8.4	3,607	41%	1,493	9.2
	MILWAUKEE	14,462	15%	2,183	8.0	9,673	42%	4,023	9.5
	OZAUKEE	2,446	6%	137	5.2	1,375	33%	452	10.4
	RACINE	6,259	11%	696	7.8	3,674	52%	1,905	8.6
	WALWORTH	4,474	8%	380	5.2	2,662	28%	752	9.0
	WASHINGTON	4,503	13%	607	7.3	2,815	40%	1,123	9.3
	WAUKESHA	10,706	9%	989	6.5	5,406	33%	1,801	7.7
SW	COLUMBIA	3,492	3%	89	3.2	2,127	18%	374	9.0
	CRAWFORD	2,414	8%	200	1.7	1,454	35%	502	10.8

Region	County	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	DANE	8,050	15%	1,240	8.2	4,823	28%	1,327	10.0
	DODGE	3,156	8%	242	3.6	2,010	40%	804	11.1
	GRANT	3,239	5%	147	2.4	2,149	25%	544	13.4
	GREEN	1,340	1%	13	4.5	761	35%	270	10.9
	IOWA	2,054	4%	81	3.1	1,344	20%	266	9.1
	JEFFERSON	2,201	6%	140	2.6	1,354	26%	358	10.4
	JUNEAU	1,820	3%	57	2.3	1,605	28%	454	11.1
	LA CROSSE	2,979	5%	150	4.2	2,785	33%	930	11.0
	LAFAYETTE	1,446	7%	94	2.5	832	34%	284	13.3
	MONROE	2,550	5%	132	1.8	2,235	32%	716	10.0
	RICHLAND	1,947	4%	71	2.5	1,465	23%	332	11.0
	ROCK	2,872	8%	240	4.7	1,920	40%	767	11.6
	SAUK	3,730	5%	175	5.6	1,955	18%	359	11.7
	VERNON	3,177	5%	147	1.4	1,879	30%	571	10.8

### Counties 2014: Bridge Maintenance Needs

Region	County	Number of state bridges	Number of bridges recommended for maintenance								
			Deck - Seal Surface Cracks	Expansion Joints - Clean	Approach - Seal Approach to Paving Block	Misc - Cut Brush	IMP-Concrete Overlay	Expansion Joints - Seal	Deck - Clean and Sweep Deck/Drains	Drainage - Repair Washouts / Erosion	Deck-Patching
NC	ADAMS	8	2	1	2	0	0	2	0	2	0
	FLORENCE	8	4	0	4	1	0	0	1	1	3
	FOREST	12	3	1	3	1	0	0	0	1	4
	GREEN LAKE	10	5	1	3	3	0	5	2	0	0
	IRON	19	4	1	1	6	0	2	0	3	6
	LANGLADE	11	3	0	2	1	0	0	0	0	2
	LINCOLN	52	21	7	4	8	0	2	0	0	7
	MARATHON	164	89	38	58	28	2	82	28	27	24
	MARQUETTE	35	16	5	26	8	0	20	3	12	4
	MENOMINEE	3	1	0	1	1	0	0	0	0	1
	ONEIDA	14	11	0	6	3	0	0	0	2	5
	PORTAGE	96	57	23	40	21	1	52	14	18	19
	PRICE	21	9	4	3	3	0	0	1	2	3
	SHAWANO	53	44	4	18	15	0	5	7	30	1
	VILAS	13	10	1	5	3	0	0	0	1	4
	WAUPACA	71	32	10	24	3	0	39	2	16	4
	WAUSHARA	22	14	7	11	0	0	10	4	8	5
	WOOD	59	30	6	15	12	1	15	12	6	4
NE	BROWN	258	95	71	63	17	0	51	10	24	41
	CALUMET	12	2	1	0	1	0	4	0	5	1
	DOOR	19	13	6	3	1	0	4	2	0	2
	FOND DU LAC	77	58	18	46	2	0	27	6	11	3
	KEWAUNEE	17	4	1	1	2	0	3	0	2	1
	MANITOWOC	92	42	25	22	7	0	26	2	9	16

Region	County	Number of state bridges	Number of bridges recommended for maintenance								
			Deck - Seal Surface Cracks	Expansion Joints - Clean	Approach - Seal Approach to Paving Block	Misc - Cut Brush	IMP-Concrete Overlay	Expansion Joints - Seal	Deck - Clean and Sweep Deck/Drains	Drainage - Repair Washouts / Erosion	Deck-Patching
	MARINETTE	49	28	5	21	6	0	18	3	3	3
	OCONTO	44	27	4	9	1	0	27	0	6	2
	OUTAGAMIE	73	34	10	29	15	0	37	3	19	12
	SHEBOYGAN	85	47	18	29	10	0	37	0	13	20
	WINNEBAGO	156	100	32	76	19	0	41	3	28	23
NW	ASHLAND	18	1	0	2	0	2	0	0	2	8
	BARRON	68	6	0	11	8	2	4	2	8	23
	BAYFIELD	34	5	0	7	3	0	0	0	7	12
	BUFFALO	71	2	7	9	3	2	1	0	2	1
	BURNETT	15	3	0	4	0	0	0	1	2	3
	CHIPPEWA	135	7	23	19	3	3	17	2	26	5
	CLARK	41	1	2	21	1	1	2	0	3	1
	DOUGLAS	60	1	0	5	7	1	1	0	7	10
	DUNN	92	0	14	12	7	2	0	1	17	16
	EAU CLAIRE	110	7	25	22	3	0	7	1	18	5
	JACKSON	74	1	21	12	4	4	7	0	19	2
	PEPIN	16	1	0	10	0	0	4	0	3	0
	PIERCE	57	0	7	9	9	2	4	1	15	0
	POLK	13	3	1	0	1	0	0	0	3	7
	RUSK	28	2	0	2	9	3	1	0	6	7
	SAWYER	19	1	0	7	4	0	0	0	4	5
	ST. CROIX	102	5	8	17	5	0	7	0	20	2
	TAYLOR	22	3	0	0	2	0	0	0	4	4
	TREMPEALEAU	72	3	6	13	5	1	0	1	15	3
	WASHBURN	20	2	0	8	6	0	0	0	5	2
	KENOSHA	59	8	5	26	2	16	9	16	10	10

Region	County	Number of state bridges	Number of bridges recommended for maintenance								
			Deck - Seal Surface Cracks	Expansion Joints - Clean	Approach - Seal Approach to Paving Block	Misc - Cut Brush	IMP-Concrete Overlay	Expansion Joints - Seal	Deck - Clean and Sweep Deck/Drains	Drainage - Repair Washouts / Erosion	Deck-Patching
SE	MILWAUKEE	523	101	284	112	103	318	101	101	62	68
	OZAUKEE	51	10	6	21	15	34	6	4	23	12
	RACINE	61	9	7	23	13	30	6	8	12	13
	WALWORTH	115	18	30	29	15	74	18	8	29	5
	WASHINGTON	73	5	18	23	6	55	7	38	9	4
	WAUKESHA	176	35	27	64	38	104	19	12	57	28
SW	COLUMBIA	97	45	23	40	49	2	5	41	21	10
	CRAWFORD	68	24	2	20	14	0	2	7	19	8
	DANE	297	76	85	161	123	3	17	182	79	24
	DODGE	71	44	10	37	28	1	3	28	16	4
	GRANT	70	21	7	14	11	0	1	5	15	8
	GREEN	28	12	3	6	7	2	1	14	3	3
	IOWA	57	25	5	13	22	0	0	17	7	7
	JEFFERSON	111	53	24	43	25	2	5	35	12	5
	JUNEAU	80	25	15	20	3	0	13	5	9	9
	LA CROSSE	108	34	35	37	25	1	5	12	22	19
	LAFAYETTE	40	12	1	16	22	0	0	27	10	3
	MONROE	155	46	5	41	22	0	6	4	13	21
	RICHLAND	78	36	3	17	23	0	3	6	7	14
	ROCK	136	50	44	59	34	3	6	68	17	13
	SAUK	92	37	16	42	28	0	4	35	13	4
	VERNON	74	8	1	13	15	0	4	0	21	4